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The Automobile Magazine

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THE AUTOMOBILE MAGAZINE

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America's Fourth Annual Show

By Robert Bruce

THE great show opened "officially" at eight o'clock Saturday evening, January 16, 1904; but at the appointed hour Madison Square Garden was only a little livelier scene than it had been the whole afternoon and evening. All day long the vast amphitheater (ample for all purposes except a national automobile show) had been thronged with exhibitors, newspaper men and some privileged—or ingenious — persons who had worked their way past the sentries on some pretext or other.

When the doors were opened wide and the eager metropolitan audience welcomed, it was seen that a bigger, better, more attractive exhibit than ever before had come into being. The three shows that had gone before were useful mainly for comparison. This fourth one was in a class by itself, both for completeness and for the number and character of the separate displays. Few if any of the manufacturers were able to bring to the show all of their 1904 models, however, for there was not nearly enough space for complete lines. Frequently one, two or three of the machines had to represent double, or even more of that number. All were in the same predicament, however, and no favoritism seemed to have been shown in the allotment of space.

An exhibition so vast, and comprehending so much not only needed to be seen more than once, but it ought really to be viewed in perspective to realize what it contained. What it

has meant as another landmark in the history of automobile production in the United States is a still larger subject. People who came with the idea of "doing" the Garden in an afternoon or evening were not long in realizing the sheer hopelessness of their task; and either contented themselves with a general look about or else made up their minds to come again. These "repeaters" helped materially to swell the attendance totals and the receipts of the eight open days.

How universal the surprise at the magnitude of the affair and the thousand-and-one features crowded into the exhibition hall, its galleries and basements, was well illustrated by three typical westerners—by every sign horsemen from the plains—who elbowed their way in on the afternoon of the opening day. They were apparently seeing New York with no fixed program, and this chanced to be one of its sights. Coming in at the Madison avenue entrance, they stopped a moment in front of the first exhibition space, as if bewildered by the display before them. Nothing daunted, however, the tallest, who seemed to be the leader of the party, recovered himself and spoke with business-like directness: "Jerry, you go down that aisle on the left, and, Hank, you take that one on the right. I'll take the middle aisle, and we'll see the whole blamed thing."

They kept step down the hall for a few yards, but soon discovered the magnitude of their undertaking, and looking up noticed the occupied nooks and corners. Later they stumbled into the basement. Monday and Tuesday, as well as the rest of Saturday, they put in sightseeing, and casually admitted to the writer that this had been the biggest single sight for them in all New York. Even visitors at all previous shows and close followers of the industry shared, in some way or other, this same feeling of surprise. There was a sense of completeness that never before existed in equal degree.

Helping on this view and deepening popular interest in the whole exhibition, was the conviction in the minds of the many that the final lines of the motor-driven vehicle were showing themselves more clearly than ever before in the various forms on display. The old idea of the shaftless carriage, rooted in the public mind by the designs of the early years, seems at last to have departed for good and all. This is in itself a far-reaching benefit. In its place we have a better popular conception of the automobile as a new and distinct development in engineering, mechanics and transportation, entirely freed from its old limitations. Nor is the idea of self-propulsion any longer bound to one line of enterprise, but has found new results on the water and in the air, for the motor boat and the flying machine are almost one in final destiny with the motor vehicle. Along with the impetus of new and broader thought has come a larger, more enthusiastic support, and the future teems with possibilities meaning much to business and social life and economy in America.

On the outside, unfortunately, wet weather prevailed, but on the inside there was a brilliant scene. Few came to the opening in their automobiles, as compared with last year—for which difference the elements were wholly responsible. The street cars and private conveyances brought large numbers, however, while now and then a chauffeur, braver than the rest, drove up to the Garden entrance as if in defiance of the weather. Later in the week, as the sun came out for a few hours at a time, a larger number of cars were in active operation, and the near vicinity of the exhibition hall was like a bit of Paris, of which it is frequently said that you can find a fairly good automobile show on the streets at any time.

The exhibits were practically in tiers, reaching from the basement to the rafters that bridged over the topmost galleries. If there was any doubt of the willingness of visitors to explore the farthest ends of the great building in order to see everything on display, that doubt was removed as soon as the crowds had comfortably filled the main aisles, and their own momentum carried them up and along. When a group of spectators would stop to examine some particular machine, or to witness a mechanical demonstration, a block would be caused, and something would have to give way. The crowd showed evidence of the educational progress made during the past year, and technical explanations seemed to be more generally understood.

Electricity lighted the building to perfection, the long strings of incandescent bulbs along the roof being admirably supplemented by the hundreds of different power lamps in the various displays. As if by premeditated arrangement, one plain painted sign seemed to alternate with an electric sign, giving a picturesque effect and making brilliant every bit of space in the auditorium. Some novel festoons of lights were arranged over here and there a booth. Bunting and tapestries were used freely, but never ostentatiously. The polished surfaces of the highly finished cars, the comfortable appearance of their upholstering, the bright hoods and their equipments generally added to the interest and attractiveness of the display as a whole.

A democratic simplicity—quite typical of the way the American people in general and metropolitan audiences in particular manage really important affairs—marked it all. Distinguished persons were swallowed up in the one crowd; it was a show of machines, not of millinery. Contemplation of what the exhibition meant as an index to the future of mechanics and transportation over a wide-spreading continent naturally gave a momentary flight of imagination to some. But strict observation of the different show spaces, with no flights of fancy, was the usual thing; this was in itself a sufficient stimulus to practical thought.

Considering the number of people in the Garden from beginning to end of the week, it was always a quiet, studious crowd. Only the occasional tooting of horns or the ringing of bells was heard above the music of the band. There were no complete machines and only now and then a minor device in operation. Something of the desired effect was thereby lost; but movement and demonstrations take space, and the available space had already come to an end. No attempt was made to do business on the opening night; everyone, including the exhibitors and their overworked staff, seemed willing to have a good time. The making of new acquaintances and the renewal of old ones was general with members of the trade who had not been

brought together in such numbers since January, 1903.

The object of opening Saturday night is to insure a complete readiness for the full week to come. Previous experience had taught the need and wisdom of this provision, but this time the doors opened on a more complete preparation than ever before. Fewer important displays were caught on the way over from Europe, and en route from the various inland factories than last year. The lessons of the past as regards the need of early preparations for the National show had not been in vain.

A well-known importer of French machines, who attended the December Salon in Paris, remarked to the writer that the Americans are coming closer to the best European standards, not only in the manufacture of motor vehicles and their accessories, but also in the manner of displaying them. There is a certain real style to the 1904 family of our automobiles that has heretofore been somewhat lacking, an independent solution of all problems in the characteristic American way, producing results of the most practical and permanent order.

Altogether, a total of 185 spaces was blocked out, 90 manufacturers, New York agents or importers showing complete machines, and the rest the parts and accessories that enter into the construction or form the equipment of the automobile. Co-operating in the show project were the two leading factors of the trade and sport at the present time in this country—the National Association of Automobile Manufacturers and the Automobile Club of America, with the Madison Square Garden Company as a practical partner in the enterprise. The unofficial "overflow exhibition" held at the Herald Square Exhibition Hall the same days was well patronized, both by people unable to secure space at the Garden and by the public generally.

The trade was largely represented by visiting agents from all over the country, though the bulk of the crowd was made up of automobilists who came in to see a comprehensive display of new types, and would-be purchasers who desired a larger variety to select from than any local market could afford. This show practically opens the 1904 business season. On the success obtained by a manufacturer—particularly a new concern—in placing agencies, making individual sales, and gaining favorable attention generally, depends much of his prosperity during the ensuing year. More distinctly than ever before New York sets the national fashion in automoboling; and the reports from Madison Square Garden are closely watched by intending purchasers.

As anticipated, the thousands of daily visitors were greeted with a brilliant display of new styles, progressive designs, superior workmanship and elegant finish, in greater variety than ever before, though the number of complete machines was severely limited by the capacity of the Garden. In all there were 181 gasolene cars, 46 electric vehicles, 11 steam wagons and a number of motor bicycles. Nothing that could attract the eye or add life and pleasing character to the occasion seemed to be overlooked. The imported French, English and German machines contributed to the completeness and general interest of the display as a whole, at the same time enabling those desirous of doing so to make point-and-point comparisons between automobiles brought from European countries to sell at from $5,000 to $15,000 and the corresponding native types listing principally at from $1,200 to $3,000. None who carefully weighed this matter could doubt that the designers and manufacturers of the United States have prepared themselves to compete, price and quality considered, with the best of other countries.

Looking back from the present viewpoint, 1895-99 might not improperly be called the era of preparatory organization, financial and mechanical, also of individual experiments. 1900 was devoted largely to laboratory and factory experiments, and to gradually perfecting organization. The last three years, however, have been a period af active manufacture and public demonstration of the results achieved. Each year there has been increased success in adapting American forms of motors to new and original vehicle styles. That the automobile industry has been signally benefited by the gradual blending of foreign and domestic ideas is now widely apparent to any one who is at all observing.

The foreign influence has come to be less pronounced (and much less imitative), while, on the other hand, the latest French developments are influenced by the progress of American construction nearly if not quite as much as our designs have been modified by trans-Atlantic patterns. This refers principally, of course, to gasolene automobiles, where great progress has been made within two years toward meeting the public requirements for efficient, reliable and economically operated vehicles, suited to present road conditions in this country. Steam machines remain as much as ever an American department of the automobile industry, instinctively preferred by large numbers of people. The show may not have given full evidence of this fact because of the smaller number of concerns making and showing them, but steam and electricity are an integral part of our development in a sense not entirely comprehended by our transatlantic friends.

"Improvement, not alteration," the clever catch-phrase of the F. B. Stearns Co., Cleveland, O., expresses in briefest terms the central idea of the year. Distinguishing changes are conspicuous only by their absence; the less sensational but more useful period having been reached where improvements are shown principally in minor details. All the gaps have been filled, and the various complete lines made to fulfil all the requirements of pleasure and business vehicles. Graceful lines and comfortable equipment have become the proper thing in the medium-priced and even in the lower-priced cars; and the good ratio of one horse power to one hundred pounds of weight for general service vehicles more generally approached than ever before.

Wheel steering has been generally adopted, while in running glass wheels of the artillery pattern have practically superseded the wire wheels. Heavier tires are also quite general, the additional comfort derived from their use on the road, as well as the greater economy (secured through increased wearing quality), aiding the conscious preference in that direction. Increased efficiency of motor control, and water cooling and lubricating systems are claimed by practically all of the manufacturers, each prepared to demonstrate some individual progress in these details. A great deal of attention has been given

to appearances and finish, the latter being carried at times to the concealed portions of the chassis.

Aside from the special attention in some quarters, here and abroad, to the 3-cylinder motor, nothing strikingly new in engine construction is visible. The gasolene motor has been in use long enough to have had its capabilities well brought out, and its adaptation to vehicle styles seems well-nigh complete. It is said in favor of the 3-cylinder engine that it offers no dead centers, since the 3-cylinder crank-throws are set at an angle of 120 degrees with one another; that no extra weights are needed to counterbalance vibration; and that there is practically an absence of vibration at all speeds, and an impulse or explosion every two-thirds of a revolution, giving steady power and even pace on the level or in hill climbing.

At a distance the 1904 vehicle would scarcely be distinguished by the average person from the 1903 machine of corresponding type and model, though symmetrical appearance has been studied with more care, and the impression of gross bulk of some of the big cars toned down. The canopy top has been adopted by some of the makers and furnished regularly with the touring vehicles, while in other cases it is listed as an option, adding somewhat to the purchase price of the vehicle. Color schemes are the rage with the owners of the more expensive models, and makers are inclined to indulge the humor on the part of a customer willing to pay for his fancy.

More attention is paid now than ever before to convertible schemes. The E. R. Thomas Motor Company, Buffalo, N. Y., show a new limousine car that can be converted quickly into an open vehicle by removing the glass sides and end. Speaking generally, the makers are preparing themselves to provide any design of body, including side entrances and "Pullman" bodies, fitted with all the conveniences and luxuries for the tourist, and preparing one almost to make his own camp on the road if overtaken by misfortune. That this will ultimately come about is scarcely to be doubted.

The general tendency away from the automatic inlet valve continues, but the "free" valve is still in considerable use, especially for vehicles of small power. Further study of transmission and ignition problems has resulted likewise in minor changes—broadly stated as "improvements" by the manufacturers, but more properly classed as individual "talking points." The thousand-and-one minor features which would have to find their way into any complete description of the 1904 machines suggests the utter hopelessness of the task in one article written between the shows. Detailed information will be sought very generally in the catalogues and pamphlets of the different manufacturers and importers.

Names of individual firms and products already well known in the field of automobile development will mean more than ever before in the full-fledged competition that is growing up in the industry. The Packard and the Olds, the Pope-Waverley, Pope-Toledo, the Peerless, Haynes-Apperson, Thomas, Orient, White, Elmore, Rambler, Ford, Stearns, St. Louis, Cadillac, Columbia, Studebaker, Stevens-Duryea, Baker, Buffalo Electric and Courier, with many others, are each a center of enterprise that would take pages of text and illustrations to properly compass.

Modesty becomes the untechnical visitor at such a show as this. It is his only safety. He beholds an array of the products of an industry so vast that the separate mechanical details are placed in the background, while style, design and the general features fully employ his mind. The bicycle ten years ago was developed under the eyes of the public,

subject to a more or less intelligent approval of show visitors, coached in turn by racing men and amateurs who believed they had mastered the correct principles of construction. In their experimental stage, automobiles were seized upon as fit subjects for the same kind of treatment. But manufacturers have learned to accept with reservations all offhand and perfunctory judgments; and the truth has come to be recognized that the superiority or inferiority of a

motor vehicle is decided less by the individual factors than by the manner in which all factors work together under the guidance of the constructor. Their merits are to be ascertained by extensive tests on the road, not by theoretical considerations entering into their form and makeup.

Whether the single-cylinder motor is preferable to one of two, three or four cylinders, whether the engine should be upright or horizontal, whether the spark that causes the explosions should be produced by wiping contact of the electrodes or on the jump spark principle, whether transmission by bevel-gear is better than by chain, whether the governor should control the spark shifter or the spark timed by hand, whether a fire tube boiler gives better results on the road than a water tube or a flash boiler, whether water feed can be successfully regulated by automatic appliances, these and several hundred other questions are so thoroughly intertwined with considerations of the various styles of automobiles that the public at large must leave their solutions with the designers and builders. The public's part is to decide upon each production by the bestowal or withholding of its patronage—always the final verdict. In brief and general terms it may be said that a buyer should find a style and a type which meets his approval and suits his purposes, and select specifically from what the industry offers him.

He will have plenty to choose from, even then.

Twelve foreign makes of automobiles were displayed, either by direct representation or by the United States agents, and these highly finished, expensive models received their due amount of attention. The imported vehicle has now, and for a long time to come will continue to have, its useful place in this country. It is quite important that this should be so. Our home manufacturers can—and do—turn out machines equal in design and construction, speed, power and general utility to the world's best. But the added variety is worth having on our streets and roads, as well as on our tracks, particularly at this stage of the industry. The importations give us just so many more machine types and systems of operation to observe or choose from than we would otherwise have. They afford the layman everyday object lessons, and opportunities to make comparisons, at the same time placing our designers and builders in closest touch with the best that is produced in Great Britain and on the Continent.

And then, too, only automobiles of known standing at home, and of proved capabilities, can find their way in any considerable numbers to the United States. Only such can hope to compete successfully with our own products; and the tariff on everything coming this way can only be paid by vehicles selling for fancy prices. People who pay these prices usually know what they are about; so the foreign motor vehicles that become established here are almost invariably worthy of their success.

The average American "lives to learn." He serves a willing apprenticeship until he comes to the fulness of his own power; and the next thing is leadership on his own account. This means enlarged responsibilities; it calls for originality of a high order, and for good showings on all test points. Too large and too resourceful to be distanced in any subsequent developments, our native industry finds that its field is the world. Vehicles that can be used with practical success and satisfaction on American roads are already well adapted for the better highways of Europe, and an export trade of large proportions looms up. America, already leading in electric and steam vehicles, and nearly abreast in gasolene types, with an ingenuity and a capacity to use and improve the best others have, cannot be headed off by any reasonable development of the future.

The National show just closed demonstrated in a marked way the natural alliance between the automobile and fashion, bringing to the aid of the sport a social prestige which assures in its further progress a large and steady support of the most substantial character. This enlarged opportunity not only renders the situation much more interesting, but it places the designers and builders of this country on their mettle to accomplish the best results in the international game. On these foundations the shows of the future will advance in business and social importance; and satisfaction will come in increased measure to our great and growing body of automobilists because of the consciousness of the new position they hold. We are no longer obliged to disparage our own work when we consider the accomplishments of others, notwithstanding they may have had five years or more experience than ourselves.

Prices showed a wide range, from the buckboard runabout listed at $425 up to as many thousands of dollars as the ambitious millionaire might be willing to pay for a famous importation. This range in price is evidence that the industry in the United States is preparing to take care of the wants of all, whether it be for the best possible runabout that

can be built at a low figure, or for those large and expensive cars whose construction has heretofore been principally a specialty of the famous European workshops. The pleasure and business types were plainly the centers of attraction. Three or four of the record-breaking brigade were there, and a popular interest always attaches to the scared craft of the racing track.

But even the famous racing men in attendance at the several stands received scant attention as compared with an unknown demonstrator of practical points in the construction or operation of the vehicles themselves. The attendance during the week cannot wholly be told by figures, since a great throng of tradesmen, their customers, friends and others came and went in the hours when admission was by favor only. For their numbers these people contributed the most to the success of the show, and they will likewise be the first to welcome its return.

* * *

Into the show week are crowded each year more and more meetings and functions, both formal and informal, and each is concerned directly or indirectly with the welfare of the sport or the trade. The two rival organizations, the American Motor League and the American Automobile Association, held their meetings on different days, though the latter was only preliminary to the annual convention, to be held at Chicago, February 11, when a new board of officers will be elected. In attendance at the Good Roads convention on Tuesday, and sharing its program, were Frank D. Lyon, examiner of highways in the Engineering Department of New York State; R. W. Richardson, secretary of the National Good Roads Association; James H. MacDonald, Highway Commissioner of Connecticut; James W. Abbott, of Denver, Col.; Martin Dodge, director of the Road Inquiry Department, Washington, D. C.; M. O. Eldridge, chief assistant in that department, and President Isaac B. Potter, of the A. M. L. The meeting of the A. A. A. was devoted to routine business and to the nomination of officers for election next month, the office of president for the ensuing year being almost unanimously conceded to Mr. Harlan W. Whipple, of the A. C. A.

Among the other gatherings was a reunion and banquet on Thursday evening to the "Mudlarks," otherwise known as the survivors of the New York-Cleveland-Pittsburg endurance run of October, 1903, and Colonel Pope's informal luncheon on Monday to his associates and his particular friends at the Union League Club. The annual banquet given by the Hyatt Roller Bearing Company to its friends, and the regular business meeting of the N. A. A. M. were followed by the annual banquet of the N. A. A M., and, closing the week, the largest and most ostentatious of all, the annual banquet of the Automobile Club of America, Saturday night at the Waldorf-Astoria.

At the business meeting of the A. A. A. racing board the straightaway world's record of 39⅘ seconds, made recently by the famous Ford racer, "999," on the ice of St. Clair Lake, was accepted. Announcement was also made during the week that the firm of John Wanamaker had been sued by the Licensed Association on account of having the agency for the Ford car, which the holders of the Selden patent seem to have picked out as a test case. It was further announced that the three candidates for the American team in the forthcoming Gordon Bennett race in Germany would be required to present their cars for inspection by the technical committee at 10 A. M., April 15. After this inspection the cars will be sent to the Ormond-Daytona (Florida) beaches for the various short

and long-distance speed contests arranged for them. * * *

It has been said that of the numberless instruments used by man only three have reached perfection—the bow, the boomerang and the snowshoe; and, strangely enough, civilization has produced none of these. Perfection is not claimed for the most distinctive of modern inventions, the automobile. It is in that interesting stage of evolution, however, where each year shows substantial progress, and none who expect to keep in touch with it can afford to overlook any of its functions. This state of affairs not only keeps the designers and manufacturers busy, but it holds the public in an expectant mind.

The American automobile industry is to-day one great experimental workshop, and the National show is principally a convenient index to what is going on in a thousand places. After all, our most valuable information is gained from experiment and discussion. The wide-awake motorist is thoroughly alive to the fact that a working knowledge of the main principles of construction and operation is essential to the full and free enjoyment of the sport. It is all very well to have good ideas and to evolve original conceptions, but actual value lies in a practical application of the principles involved. This can only be accomplished by careful, patient and long-continued experiment; and as long as the trade is busy with these problems, the public will neglect no opportunity to inspect the progress they are making. Here is the force and effect of the National show.

Stopping a Leak

By R. E. P.

NEXT in unpleasantness to the discovering of a leak in the pipes or joints of the water-cooling system of a gasolene car comes the stopping of it. An excellent method of doing this is to bind around the part leaking a length of string which has previously been soaked in oil.

To make a satisfactory temporary repair by this method, the string should first be soaked in oil—boiled linseed preferably, if one happens to be in a locality where this can be obtained from a blacksmith or carpenter, or, failing this, thick lubricating oil—and then the string wound round the joint, keeping the coils as close together as possible.

The start and finish of the wrapping should be some little distance on each side of the point at which the leak occurs. The winding should consist of two or three layers of string, if as much of this very useful material is at hand.

In case of a leak occurring in the tank, if the fracture is sufficiently large, some tow can be made by picking a piece of string, soaking it in oil and packing it into the joint by means of a chisel or the strong blade of a penknife. White lead, of course, is at all times preferable to oil, where procurable, and if a piece of tape can be used in conjunction with this a satisfactory and permanent repair can be effected.

The Successful

"The trouble with too many chauffeurs is that they never stop to think."

"Yes, but I notice that the most successful chauffeurs are the ones that don't have to stop to think."

In the Now Tame West

Tourist—I suppose Brimstone Ike has killed his man.

Native (witheringly)—His "man?" Why, Ike has got five nicks in the steerin'-wheel of his automobile already.

Of Interest to the Technical Man

By E. W. Roberts

THE man of a mechanical turn will always be found at a show looking beneath the body or peeking under the hood, and in many cases he scarcely glances at the upper works. The old show prejudice against allowing the visitor to see "how the wheels go round" has entirely disappeared, and in its place the many courteous attendants are now always ready and willing to show you how everything works. In a few cases the exhibits were in charge of agents who knew but little of the technical features, but these were in the minority. It might not be out of place to remark, however, that to place an attendant in charge of an exhibit who doesn't know anything about the mechanism is unwise. I found several such in attendance at the show in Madison Square Garden, and it was simply a waste of time to talk with them.

To me one of the most noticeable features of the mechanical end of the recent exhibit was the fact that many of the larger firms had made little if any changes in their product since last year. One of the most unique exhibits in the whole gasolene line of vehicles was that of the Graham-Fox compound, which was, by the way, the most powerful pleasure vehicle in the show. It was on this Graham-Fox car, which is called the "Compound," that a five-inch pneumatic tire, "the daddy of them all," was shown. One other point worth noting was the appearance on two cars of vaporizers for using either gasolene or kerosene. But one two-cycle car was shown, the Elmore. The fact that these Elmore cars have been in constant and satisfactory use for three years makes one wonder why other makers are not taking up this two-cycle type. The secret of the whole matter is, so far as I can determine, an unwarranted fear of the prejudice of the public. As a matter of fact, the public is not prejudiced for or against the two-cycle motor, and will as quickly buy this type as any other if it can be brought to their notice in a favorable light. However, the larger firms, or at least many of them, are experimenting with this two-cycle type, and we may see more of them by the time the 1905 show comes around.

Now that automobiles are being manufactured in larger quantities, observers find that the builders are taking more and more to die-formed parts. The quite general adoption of the pressed steel side frame is the first step in this direction. Next season we may expect to see pressed steel transmission covers and even pressed crankcases. The only thing which has prevented the general adoption of this die work in the past has been the almost prohibitive cost of the tools where only small quantities of the material were in demand.

This year finds a great many of the gasolene-engine makers using mechanically operated inlet valves. This is certainly a move in the right direction, since the general consensus of opinion is that more power can be obtained from an engine running at various speeds with a mechanical than with a suction inlet. No change worth noting has been made in the manner of opening the valves. One firm, the Peerless, have inserted a short lever between the cam and the valve stem, while another maker has removed the lever. Mufflers are as various as the makers' names. The Cadillac has practically the only radical feature in this line that is shown. On the Northern is found an enormously long muffler, and Mr. King has adopted the plan of using a separate muffler for each cylinder. This is certainly conducive to a noiseless

exhaust, as any one who had experience will admit.

Of great interest is the increased number of air-cooled motors that are in evidence. There was a time when it was thought impossible to run an air-cooled engine of over 3½-inch bore. Then some one had a bright idea that a fan would help matters, and lo, the air-cooled engine is made as large as 5-inch bore. I should say that at least 30 per cent. of the gasolene engines at the show were of the air-cooled type. No one will deny that getting rid of the water jacket is "a consummation devoutly to be wished for." If the large air-cooled engine can be proven a success under all conditions, we may have to say good by to radiators and circulating pumps. I do not believe that any one will shed tears at such a farewell except the makers of radiators and pumps.

What is the trend of the igniter? many are asking. Do you as a visitor remember how many hammer-break igniters used to be in evidence? I don't believe that there were 5 per cent. of the Garden exhibitors using the primary form of ignition. The change is undoubtedly due to the great improvements that have been made in high-tension ignition within the past two years. A marine engine builder who recently took up the jump spark told me that he had scarcely one-tenth of the trouble with the high tension as with the low. The proof of the pudding is not only in the eating, but in how you feel the next day. So the proof of the jump spark lies not only in its adoption by the builder, but by the demand for it by the user.

In the transmission line the sliding gear is the general favorite. It is unmechanical, but it cannot be denied that it "gets there." The planetary system is still quite the favorite on the small cars, while the selective-clutch system is used by a few. Two speeds forward for the smaller vehicles and three speeds forward for the larger cars is the thing this season, and in only one exhibit do I remember a four-speed ahead. The location of the transmision lever is, in many cases, found upon the steering pillar, and here is where the majority are placing the throttle and spark control. The builders seemed to be studying convenience much more than formerly, but still there is much room for improvement in this respect. I noted several cars in which the transmission and the brake levers were so short that the operator would have to bend almost double to reach them. This should not be, as the operator of an automobile must at no time take his eyes off the road ahead for more than a hurried glance at the instruments on the dashboard.

There is much room for improvement in the gasolene vaporizer. The hand controlled mixture adjustment must go, and *it will*. It is not a very difficult matter to so construct a vaporizer that it will take care of the mixture automatically, and as this means giving the operator one less lever to take care of, the progressive maker will have to adopt it. That brutal method, once in vogue, of controlling the engine by the igniter, has practically died out. But there still remains the objectionable hand-controlled spark. Even the most expert of operators cannot keep an igniter lead adjusted perfectly; hence as the lead is a function of economy as well as of effective operation, it should be under governor control. The steam vehicle men have given a good example of what can be done in automatic control, and the lesson should be learned by the builders of gasolene machines. Again, a governor control removes another lever from the hand of the operator.

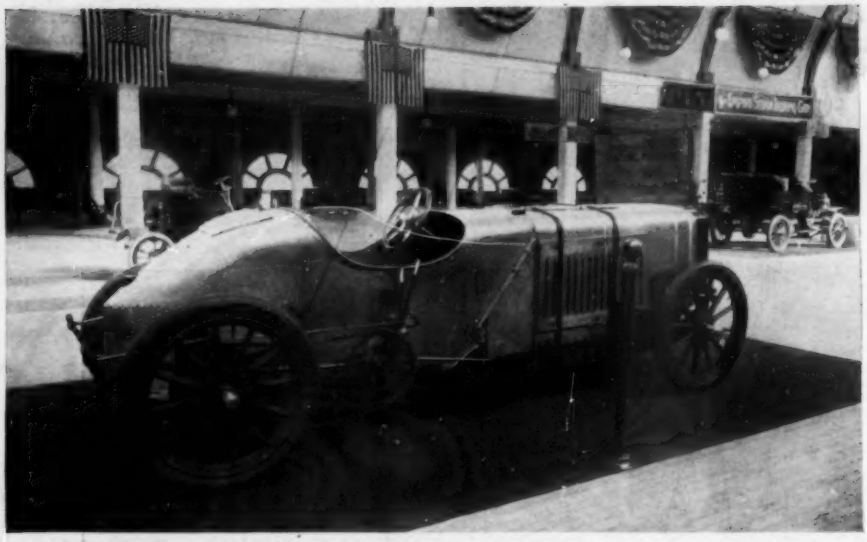
I have noticed with surprise, and a little disgust, that even the largest of manufacturers cannot profit from experience. Quite a number of them are still using

valves which are of but one-half the area they should be for efficient working. What is the use of having mechanical engineers if you can't learn from them a little lesson like this?

Did you notice how the many are sticking to that French toy, the tonneau with rear entrance? Could anything more uncomfortable or inconvenient be imagined? More than once it has been shown that the surrey or the side-entrance tonneau is not by any means a difficult proposition. Throw the tonneau away, gentlemen. We want the good features of the foreign cars, but not the poor ones. And, apropos of this, why not enclose the front seat as well as the back seat? It costs but little and we should think of the chauffeur as well as the occupants of the rear seats. But don't put curtains on the sides of the front seat. More than one accident has been caused by putting blinders on the chauffeur in this manner.

I may be prejudiced, but I don't like

to lie on my back in the mud to repair an engine. The engine under the body is a nice thing from some standpoints, especially so in making the mechanism compact. But how much more comfortable, in case of trouble, is it to have the motor or the transmission accessible. It may be rheumatism, but I have a feeling in my



THE HARRY HARKNESS INTERNATIONAL RACER WHICH HAS NEVER RACED

bones that the motor-in-front will oust the one beneath the floor.

One feature that shows the trend of the public demand is the predominance of the higher-powered car. The cry is: "Speed, speed, more speed!" And the eternal question is now: "How fast will she go?" Therefore, many builders of single-cylinder engines have taken up the two-cylinder, and the makers of two-cylinder cars last year are using four cylinders this year. I verily believe that three-fourths of the high-powered cars were equipped with 24 horse-power engines. This is surely a peculiar coincidence.

Age of "Less"

Anon

What is the use of building up,
And adding to things that grow,
Since everything we see and feel,
And everything we know,
Is getting less and less and less—
And better, the smaller, too—
With less to make and less to mend,
And a little less to do?

Hammerless guns to shoot and kill,
And a chainless cycle to ride,
A hornless cow and tailless cob,
And a hairless dog, beside;
A horseless carriage in the street,
A sailless ship on the sea—
What is the use of the things that were,
Or the things that used to be?

A seedless orange in the grove,
A hipless rose on the lawn,
A smokeless furnace in the house,
While the children pound upon
A soundless keyboard up and down
The new pianoforte!
Oh! the world itself is shrinking up,
And the days are getting short.

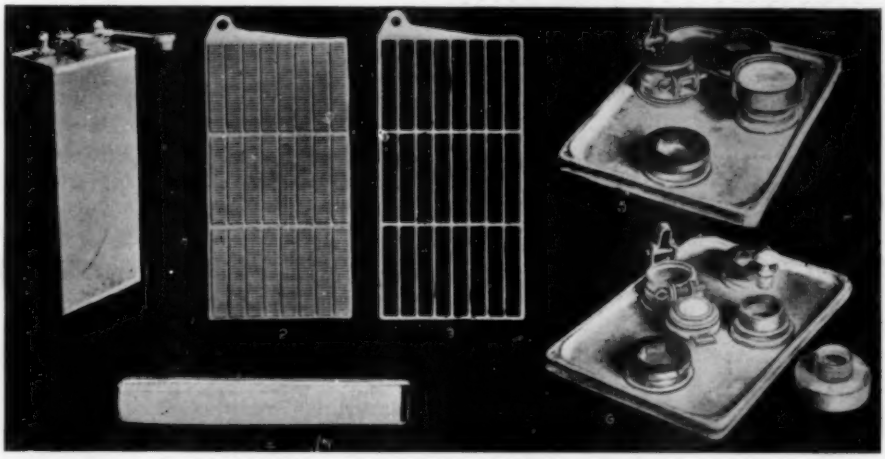
The hand of Time has suffered the loss
Of a finger, and is slow;
Everything we see and feel
And everything we know
Is getting less and less and less—
And better, the smaller, too—
With less to make and less to mend,
And a little less to do!

The Wizard's Own

By James E. English

ABOUT this time of the year it has for several seasons past become the regular course of procedure to report upon the Edison storage battery. This having, as I have said, become an annual affair, I am pleased to be able to report, as a committee usually does when it has nothing to do, progress.

In the present instance the report assumes an importance it was not before accorded, because the source of the report is not so closely allied to the source of the thing reported upon, as has unfortunately been the case heretofore.



1. Complete Cell 2. Finished Plate 3. Grid 4. Pocket ready for insertion 5. Cover of Cell
6. Cover of Cell with Filling Cap and Gas Valve open

In a paper recently presented before the Institution of Electrical Engineers by Mr. W. Hibbert some interesting practical information is given concerning tests made with an automobile equipped with an Edison battery, and as this is the only complete account of the battery which has been made public, the matter demands attention.

The principal advantages claimed for the alkaline battery are lightness, strength and durability. These features are secured by the use of plates of sheet steel, carrying pockets of active material, and an electrolype which is not decomposed, permitting the use of a sealed cell. Mr. Edison's characteristic criticism of the lead storage battery: "The darned thing is wet" also applies to his own battery, but at least he has dispensed with the acid, and has enabled the containing cell to be closed against spilling.

In the standard automobile cell of the Edison type, such as was tested by Mr. Hibbert, there are 14 positive and 14 negative plates, each plate being made of sheet steel, nickel plated, and punched with 24 rectangular holes. In these holes are placed perforated pockets containing the active material, this material being nickel peroxide for the positive plates and finely divided iron for the negative plates, the materials in each case being mixed with flake graphite.

The liquid is a 20 per cent. solution of potash, and the whole cell is sealed in a steel case, provided with a stopper opening for adding water, and a vent hole

L. of C.

guarded by a gravity valve to permit the escape of the gas evolved during the charge. The outside dimensions of the cell are 13 inches high, by 5.1 by 3.5 inches base, the whole weighing 17.8 pounds.

The most important question about the battery is supposed to be its relative weight. Mr. Hibbert gives the output as 210 watt-hours, which for a weight of 17.8 pounds gives 11.8 watt-hours per pound of cell. While figures nearly as high as this have been obtained with other cells, it has been done only with considerable risk, and in the Edison battery it is the normal proportion. The weight of lead cells can be reduced only by making the supports very thin, increasing the fragility and shortening the life.

The influence of temperature on output is an important feature with the lead cells, but such experiments as have been made tend to show that even a marked rise in temperature produces but a small effect with the alkaline accumulator, much less than is the case with lead batteries. In the latter case a rise in temperature causes an increase in the rate of diffusion of acid, and the more rapid circulation causes a corresponding increase in activity. With the alkaline cell there is no need for circulation or diffusion of the liquid, and the only effect of an increase in temperature is a reduction in the internal resistance of the cell.

Mr. Hibbert gives a number of curves showing the behavior of the cell under different conditions of charge and discharge, and these show conclusively that it can maintain a high rate of discharge. In testing to ascertain the maximum charging rate a cell was carefully discharged at 30 amperes, down to 0.75 volt. It was then charged for one hour, 177 ampere-hours being put in. The current was not quite steady, varying from 180 to 176 amperes. The subsequent discharge showed that 124 ampere-hours were delivered, or about 70 per cent. of the charge. Experiments with motor car work show that the cell can be charged at over 200 amperes, and the maximum rate does not yet appear to have been reached. Experiments with discharges varying between 60 and 230 amperes give a very interesting pressure curve, showing that the cell behaves like an elastic structure, its pressure rising and falling with the varying demand, but responding at such a rapid rate that the lines of changing pressure appear vertical.

The most interesting portions of Mr. Hibbert's paper, however, are those relating to his actual experience with the Edison battery in operating an automobile.

A Studebaker runabout was fitted with 38 Edison cells, the whole outfit, including two passengers having a weight of 1,950 pounds, 700 pounds of which were due to battery. Although the motor was a 40-volt, 24-ampere machine, the battery gave an average pressure of 48 volts, so that the conditions for successful working were not the most favorable. With this outfit a speed of 14 miles an hour on a level was obtained, the power being about 1,920 watts, corresponding to 2,200 watts per ton, and giving a tractive effort of 79 pounds per ton. Allowing 85 per cent. for motor efficiency the tractive effort is 67 pounds per ton.

The work appears to be about 135-watt-hours per ton-mile, a higher figure than has been obtained elsewhere, but not unexpected, considering the want of balance between the battery and the motor.

A diary of road and general service of this vehicle, in France and in England, shows an excellent record, runs of 30 to 40 miles on one charge being given, with much irregular service, there being a total of 508 miles, which, added to 400 miles run before Mr. Hibbert took control, gives 908 miles. Tests made in connec-

tion with these road trials practically confirmed the previous laboratory investigations. A 40-mile run in England, occupying 3½ hours, gave 150 ampere-hours, while the laboratory tests at the same rate showed 159 ampere-hours. Observations of varying rates of discharge showed that with 50 to 60 amperes on a level the rate rose to 90 to 100 on grades, and in one instance was over 150 amperes. Results of rapid charging are also interesting. In one instance, owing to local conditions, it was necessary to charge rapidly, 150 ampere-hours being received in one hour, and in the subsequent run 107 ampere-hours were delivered, an efficiency of 71 per cent. Again, after having been allowed to stand discharged for ten days, the battery received 186 ampere-hours in one hour, and the subsequent discharge, from a 31-mile run yielded 134 ampere-hours, or 72 per cent. of the charge.

So far as the important question of durability and permanency is concerned, the experience seems hardly extended enough to enable full information to be secured, but the battery showed no appreciable deterioration during the experience which Mr. Hibbert had with it, although the conditions were such as to give this feature a reasonable test. Mr. Hibbert says, concerning the connections: "My 500 miles on the road were sufficient to test them, and not one of them failed or became weak. Not one of the terminals had to be touched from the beginning to the end of the run. We had rough roads and rough weather, so that the motor was seriously overloaded, and the car was so strained that it had to go into serious repair as soon as our run was finished, but the battery and its terminals endured it all."

Only an Imitation

The opposing racers had struggled desperately for the mastery.

But the meet was over.

Strange to say, nobody had been carried off the field senseless.

There were no broken bones.

Not an automobile had been disabled.

Not one bore the mark of the slightest injury.

"It is magnificent," said the spectators, "but it is not automobile racing."

ONE OF THE DRAWBACKS OF A CHEAP MACHINE

The Gentle Sport of Auto Chasing

By Jeremiah Donavan

"THEY ain't nothing like as bad as they used to be," observed Bicycle Policeman 4434 to me as we stood together upon the curb up on Seventh avenue. The "they" referred to by Officer 4434 were the owners of automobiles who greatly favor this broad, car free avenue as a means for a speedy departure from the city when bound for Westchester and along the Sound resorts.

"See that big fellow slow up," said he of the two fours, a three and another four, as he came back to where I was standing after he had finished piloting to the sidewalk the last of the little girls hurrying to a nearby school. "The chaffer has me spotted. He's had his eye peeled for me all the way from 125th street. When they don't see me down there somewhere they know I'm at this end of the line, and they stand ready to ease up. When they're hitting her up for Jerome avenue about this time of day I usually stay up here so as to keep them guessin', and when they're comin' back, I'm usually down below.

"But this don't follow, by any means. I'm liable to be anywhere, and this is what troubles them. They hate to go slow along here. You see, there's none of the beauties of nature to admire, like over on the Drive, and then a good many of them's afraid they might possibly be passed by another one of his gang.

"Coming back it's worse and more of it. They've got to get home and change their clothes for dinner, you know, and most likely they've got appointments for the evening. So when they see a clear space for a block or two they take a chance and let her out. That's where I come in.

"The other afternoon at about five o'clock I saw a big machine of goodness only knows how much horse-power pluggin' down the avenue like a wild engine. I held the watch on them, of course. Well, they made a block in nine seconds, which means near enough to twenty miles an hour for me to be gettin' busy. I jumps on my bike and just got her goin' when they come up with me.

"'Stop!' I yells.

"The chap beside the chaffer says something; they all ducks a little lower—the ladies behind as well—and the machine goes by me like a trotter by a cart horse. But this don't worry me any. I know they can't shake me, even at a thirty mile clip, for a few blocks, anyway, and I swings in behind, countin' on the traffic on one of the big cross streets to hold 'em till I can get my hand on the back of the rear seats.

"Well, it was just as I expected. They had to slow down at 125th street, and I was right up with them. They seen they couldn't lose me, so they stopped. And then you ought to have heard the game o' talk, not by the men, but by one of the ladies in behind.

"'Well, if this isn't an outrage!' she says to the others. Then she turns to me. 'Look here, officer,' she calls out in a fine, high-toned voice, 'please let us pass instantly. We have an appointment to dinner to-night, and we're late now. We can't stop here, not a second.' An' me all the time knowing she was Belle Brussell, of Pepper & Steals, where I used to be an usher before I got on the force.

"'I'm sorry for the dinner, ma'm,' I says, as polite as I knew how, believin' that it's the right thing to be a policeman and a gentleman at the same time, 'but your chaffer, anyway, will have to stop long enough to come around to the station house and be bailed out.'

"'But that's impossible, officer,' she

answered; 'he's the only one that can run the machine, and this engagement is very important.'

"'I can't help that, mam,' I told her; 'I'm here to do me duty.'

"'Well, did you ever hear of anything so outrageous!' she says to the other lady. Then she remarks to me again, in a way that would freeze you: 'You seem to be great on duty, officer. Do you always do it as well as this?'

"The crowd that had gathered thought it was funny to see such a stunner as she was get mad.

"'For heaven's sake, Belle, keep still. We can't argue the matter here,' says the Willie boy in front. 'Go ahead, officer. We'll follow you to the station house.'

"It didn't take them more than five minutes to fix up the bail papers—the young fellow owned a lot of real estate—and then they got started again, the lady from Pepper & Steals was still tellin' the others what an outrage it was.

"It's usually the women that has the most to say when I'm forced to take a scorcherino party to the station house. They even get highly indignant when I trail the car for a little way to give them warning.

"'There's a policeman who seems to be followin' us,' I heard one of them exclaim one day. 'What right has he to? It looks as if we was under arrest.'

"And yet they're not all so squeamish about the respectful attention of a fairly good lookin' policeman like me. I was comin' up pretty close to an automobuggy one afternoon to tell the fellow at the steerin' gear to ease her off a bit, when I noticed the ladies tucked in behind had a kind of young and coltish look. I sized them up to be a couple of chorus merry, merries off Broadway, and I guess, if I haven't forgot all I learned in my old job banging down orchester chairs, I was pretty near right, for all of a sudden one of them heaved a bit o' candy at me from a box they had between them. Then the other tried her hand at it, and the laugh was on me.

"'What's the fun back there?' asks the chap at the wheel.

"'Oh, we're feedin' the birds, that's all,' says Mamie. Just then I got out from under, to keep the crowd on the walk from gettin' too much of a laugh on me.

"No, I naturally don't like to bother the ladies. Besides, the men take their arrest easier. As a rule they don't say much, except by way o' telling me that I'm dead wrong if I think they've been goin' beyond the speed limit. They may have been hittin' her at better than a twenty-five-mile clip, and yet from the way they talk you'd think they had only been engaged in making pace of a tired turtle. Why, one gentleman that I had down at Special Sessions swore that his machine couldn't go faster than eight miles, and yet it wasn't two weeks afterward that I picks up a paper and reads of him winning a couple of races with her. If what he said in court was right he must have had her up against street rollers.

"When they try to bluff me about the speed, I don't answer back, but just flash my stop watch at them and tell them to come along. This settles the argument with most; but, say, you ought to have heard how I had it handed out to me a while ago, and by one of the big millionaires from the West.

"You'd 'a' thought he'd learned to talk in the stock yards, and I guess he had, too. He was goin' to have me run off the force inside of a week. I was to be diggin' ditches. Accordin' to him my job wasn't worth the price of a can of stale beer. I held my tongue, and just as soon as I got him up to the desk he calls out:

"'Sergeant, this is the damdest most dignified cop I ever set eyes on. He

ought to be a judge, but, by Wabash avenue, I'm goin' to have him broke!'

"He was comin' right along with more of the same when the sergeant jumps up out of his chair and tells him that if he don't stop threatening an officer in the performance of his duty, he'll send him back for disorderly conduct. He cools down after this, gives bail and goes away, but without so much as a word of goodby to me.

"Another time a gentleman steps up to me on the corner and gets into conversation with me just as you are doin'. After we'd been talkin' a bit he wanted to know, as man to man, what was the use of my arrestin' his friends for little bursts o' speed.

" 'Maybe they do like to travel up the avenue at a little over eight miles an hour,' he says. 'That's natural. What's the use of owning an automobile if you can't travel in it faster than you can walk?'

" 'With all due respect,' I answers, takin' on a bit of style myself, 'I want to ask you, man to man, as you say, whether you think it would be wise and sensible for me to arrange a speed limit of me own? The law does that, and I'm not paid to make it. If you think the law's wrong, get it changed. You can do it easier than I can. This happens to be a school corner,' I went on. 'Suppose one of your friends' machines comes pluggin' along at a twenty-mile clip when children are crossin'. If some of them don't get killed they're lucky. If I see a coon on the street with a revolver in his hand, I don't wait till he kills somebody to pull him in. It's the same thing.'

" 'Well, officer,' he says, 'there's such a thing as bein' too zealous. These people are gettin' sore on you.'

"I told him I wasn't paid for doin' detective work findin' out who was sore on me, and this ended the argument.

"Yet you'll may be surprised to know that some of these automobilers, especially the young chaps, don't mind bein' pulled in once or twice. I've had 'em yell at me, and start out to give me a race. I've no objections; it's my game, and before we know it we've got into the doggonedest race you ever see. It's hot while it lasts. I tell you that sometimes when I'm pikin' along the avenue with children likely to run out, or wagons to swing around a corner, my heart's in my mouth. And I don't always git the chaps what's makin' the pace, at that.

"One day when I was hittin' it up a little fox terrier thought he would take a fall out of me. Well, he did. I struck him square in the back as he came out from the curb, and I sailed about ten feet in the air, landin' nicely in a sittin' down position. I can see the chaps in the back seat of that automobuggy laughin' now as they dodged into 125th street, and I'll bet they're tellin' their friends yet how they lost me.

"It don't happen often that way, though. A little brush like this has cost some of them twenty-five. But they don't mind a little thing like that when they consider the sport they get out of it. As I say, some of the young chaps rather like it for once because it gets their names in all the papers as being dashin' divils with their automobuggies. It sorts o' puts them in the same class with the Vanderbilts.

"It's only on the wet days that they have the laugh on me. I can't give them a spiel on account of slippin' all over the avenue, and they know it. So they give me a merry smile as they go by. That's all right. I have to smile myself. But if I see them in time I jump out in front, and they have to stop or run me down.

"Once when I had a puncture I seen a white machine comin' along like a runaway. I grabbed my wheel and began waving it in front of them. They tried to go around me, but I was Johnny on the

spot. It was like shooing a bull, but it worked all right.

"'Ye're under arrest,' I said.

"'What for?' asked the lad with the big specks in a surprised and innocent kind of way.

"'Why, for pickin' flowers, of course,' I tells him.

"At this they laughed, and on the way around to the station house the lad with the specks lighted a big cigar and pullin' out another asked me if it was against the regulations for me to accept that small token of his regard. When I told him that I was sorry, but under the present circumstances I couldn' smoke with him, he laughed again, and seeing that I couldn't ride my wheel on account of the puncture, he invited me to get in and stow the bicycle behind.

"'Do you want to kidnap me?' I asks him. Well, they had a bit o' fun out of it, and it only cost the lad with the specks a ten spot.

"But those gee-gee French chaffers is the boys that don't like to be pulled, especially if the boss ain't along. If he ain't had the fun o' the speedin' he don't, as a rule, care about the fun o' pain' the fine. About every time I hold up a chaffer he tells me he'll lose his job if I don't let him go. But they're wise boys, the chaffers. They know pretty well where they can take a chance and where they can't. One of them told me the other day that it used to be a cinch for them down on Fifth avenue along the Park, where there was no cars to interfere with them. But the department has six extra men down there now.

"The chaffers try to cultivate the acquaintance of the bicycle squad. They know the names of a good many of us, and some of them have got so they seem to be able to spot us about ten blocks off. It's the plain-clothes men that have been put on in some of the upper precincts that has them guessin'. You see, when a man's without his uniform they have to see his face before they can be sure. This keeps them rubberin' at everybody on a wheel in sight and makes 'em nervous.

"They know us, but by the same token we know them. I've got in a little book the numbers of most of the machines that pass here, with notes such as 'goes slow,' 'too fast,' and so on. It's a sort of black list I keep, and them that's on it are the ones I usually go after. But, as I told you a while ago, they know we're on to them now, and they're gettin' tamer. The sport is not as excitin' as it was about a year ago."

AUTOMOBILE SPECTACLES

Speed and the Price

By Remington Vernam

LIKE a million more you are thinking of buying an automobile. Let up suppose, like ten thousand other lucky individuals, you have the money to make good your think and you are going to join the motor brigade this spring. You've, of course, read all the advertisements, pored over half a hundred catalogues, visited Madison Square Garden and there seen and had explained to you a hundred or more vehicles, each of which possessed some feature more desirable than the other ninety and nine.

Still, there lingers in your mind a remnant of that original distrust which has come to you from your forebears who taught you to believe that only in the horse power which came from motors equipped with horseshoes was safety, surety and speed of transit to be surely found. Banish all such old fogy ideas from your mind; remember there have been several changes in transit methods since your father took six hours in a fast train to come from Philadelphia to New York. Of course, the "man in the street," with whom is to be classed the "bourgeois" of commerce, has his views. He already knows the various makes by the look of their bonnets; he can tell a cheap steam car by the exhaust, and an electric one by the "little ticking noise that goes on underneath," for he is always attentive to what promises a new sensation or new profits. His view is that the purchase of any sort of an automobile is beyond the average purse, its management beyond the average wit, its risks beyond the average, its pleasures transient, and its survival very doubtful, even if desirable, and on broad-general, ignorant-conservative grounds he's "agin' 'em."

After these the world is composed of men, women, and hayseed legislators and justices. There are men of law, men of letters, men of art, professional men, politicians, etc. All these are thinking, waiting, listening, trying, and learning about the extraordinary results of five years of hard brain and hand work. The hayseeds as usual are doing what they may to retard progress.

The advantages of automobiles as compared with all other vehicles are in the briefest summary—their speed, absence of fatigue, ease of control in not running away, in not starting unbidden, in being safely left untended, in excellence of brakes, economy in requiring less stable room, less immediate attention on return from a journey, and less lengthy attention before starting on one. The access they give to beautiful scenery, the access to a large circle of friends when in the country, and the access to the country when in town, the health they bring with fresh air, all united with an absorbing pursuit, distraction from work, ease of traveling, inoffensive stabling, and perfect harmlessness in the streets.

What I have briefly outlined above are not all the automobile's advantages, but I want you to know some of its drawbacks—the dust, the noise, the smell, the tire troubles, the breakdowns, the scarcity of drivers, the fire risks, the damages to self and others, the expense, the cold, the damage to eyes, the hideous dress, the ugliness of cars, the skidding, and the difficulty of making a choice. This list, too, is incomplete, but if the advantages be compared with drawbacks no one can fail to be struck with the abiding nature of the first and the obviously transitory nature of the second.

What you lucky novices of to-day have now to do is as nothing to what the pioneers of automobiling have done. So great are the advances made in even the

ALL THAT A FIRE LEFT OF A GARAGE

last year that none but the most confirmed pessimist would for a moment think that such minor mechanical troubles of dust, noise, weight, and tires will be with us very long.

Not only are speed and utility as closely linked in fact as speed and breakdowns are in imagination, but speed also bears a very close relationship to price. Once you have decided on how much comfort in the way of cushions you want, how much comfort in the silent running you can dispense with, and the color of your car, and how many people you want to carry, you must at once decide either how fast you propose to carry them, which, broadly speaking, determines what price you will have to pay, or you must decide how much you will pay, and this determines how fast you will travel. There are variations from these averages, but the true speed of a car which is very fast and yet very cheap is affected by the fact that it is not really fast traveling to hurl yourself through the air for ten miles and to spend two hours in repairing. At the best, this only yields a rate of five miles an hour. It is on this principle that many people believe a horse and carriage to be in the end the quicker conveyance. This, I am in a position to know, is a mistake; further, the automobile is cheaper mile for mile, speed for speed, and tonnage for tonnage, than any form of animal traction ever was or ever will be.

With speed the governing factor of price, it becomes essential that you make a study of this so as to enable you to know how much of the factor you really want to pay for. To begin with the good old Bailey standard of eight miles an hour, an automobile whose brakes are proportioned for quicker traveling can be brought to a standstill within a yard, though a horse and buggy going at eight miles per hour cannot stop within three to six times that length. Passing to twelve miles per hour, we reach the extreme limit the motor phobe would allow, but does he or any of his abettors know that if the maximum speed is 12 m. p. h.

the average is only 8 m. p. h.? Experience with horse-drawn as well as motor carriages shows that to run for one hour and cover twelve miles (which is quite a reasonable thing to do) will have necessitated, by reason of hills, traffic, turns, and of the villages, so much slow work that it must be made up for by exceeding 12 m. p. h. in the clear spaces. In fact, we must reach at least 17 m. p. h. for short spells to average twelve miles during the hour, and 17 m. p. h. is the occasional practice of cabs, hacks, carriages, and even of fully loaded omnibuses on favorable occasions.

It is well to be clear on this point, because it explains why an automobile owner so seriously objects to being timed on a hundred yards of straight, level road, and fined $25 for going at 17 m. p. h. The proof that the legal restriction of speed down to 12 m. p. h. would be a dead letter is that a touring car which could break such a law would be absolutely unsaleable, as also would be a horse or pony.

Coming to thirty miles an hour, you approach the exact line which marks the point where the automobilist begins to get his money's worth, and the anti-automobilist ceases any longer to have the least control over himself. Personally, and I am far away from being a scorcher or even friendly thereto, I believe that 30 miles per hour for an automobile is not only desirable, but should be legitimized and made permissible on all open roads, provided, of course, that precautions are taken that the brakes are good, and the driver possessed of ordinary sense and caution.

When you progress to 40 miles per hour, believe me you read of it much oftener in the columns of the sensational press than you are ever able to se it upon the ordinary roads in this country. When, however, it is accomplished I do not hesitate to say that my sympathies are all with the other users of the road and not with the automobilist. Nevertheless, the number of pedestrians who claim that they have been saved from instant death by their own agility in avoiding a 40 m. p. h. car shows no appreciable sign of diminishing. This great concensus of the uncrushed deserves some explanation: Forty miles per hour is very nearly the same as saying 60 feet per second, and no ordinary person standing still *can* move forward one yard in half a second, so that when such a car is 30 feet from you and approaching your way you cannot normally step from the sidewalk into its path if you would, whereas it could get out of your way if you did.

Last and greatest of all we come to the much-talked-of "mile a minute." There is a mnemonic symmetry about traveling one mile in one minute that has caused this particular speed to have a fascination for everybody. Millions of dollars have been spent to attain it, not all, of course, in automobiles. It has consequently become a commonplace conversationally, though it is rare enough on the road for it to be worth while to give an impression of the sensations that are followed by such traveling. To begin with, the near objects on the roadside are rushing past at so great a speed that one never allows one's self to look at them, because they practically produce no mental impression other than that of a blur or haze. Only the more distant objects at the sides and the objects in front of you are sufficiently still to be appreciated by the eye at all. One singular thing which is noticed when flying along at this speed is that the smallest up grade in the road seems to rush up as though it intended to strike the driver in the face; then when the hillock has been surmounted there is apparently no ground to run upon, and you are treated to about the same pleasant sensation you would have if you were dropped off a cliff. All of which makes

the mile-a-minute automobile something only for shrewd men to build and reckless ones to buy and then misuse to the injury of all.

Having carefully made up your mind as to what the speed of a motor vehicle really is, and what safety and your needs make necessary, next should be the question of what you will have to pay for a vehicle such as you want; it will narrow down in most cases to your choosing from perhaps a half a dozen or so of the same price the particular one which either pleases your fancy best or which has the best salesman offering it to you.

Swifter Than Thought

By George Rachfuss, M. D.

FORBES WINSLOW, an eminent English brain specialist, has declared that driving a big racing car at top speed for a distance like that called for in the Bennett cup contest, surpasses the powers of man.

"When these racing motor cars reach a speed of eighty miles an hour," he says, "they must drive themselves, for no human brain is capable of dealing with all the emergencies that may arise should that rate be maintained for any period worth speaking of. The human animal is not designed to travel eighty miles an hour. Neither the human brain nor the human eye can keep pace with it.

"The brain declines to respond to the tax put upon it; so the big racing car dashes on minus the brain by which it is supposed to be controlled, and the unexpected obstruction is smashed up, or the car is, before the mental activities come into play.

"This craze for beating records is an abnormal mental condition. I should dearly like to examine some of those afflicted with it. If they keep it up any considerable time they are sure to end with a severe mental breakdown.

"I will not be surprised if we should have a new class of patients in our asylums before long—motormaniacs."

While it would be indeed an impertinence for me to set my humble opinion up against the expressed ideas of a man so thoroughly capable of passing a final opinion upon such matters as Forbes Winslow, yet I cannot refrain from setting forth the fact that the human mind has great powers of accommodation and can accustom itself to anything that has yet appeared. The engineer of fast railroad trains is, perhaps, the man best qualified to tell the effect of speed on the brain. These engineers do not live to the age reached by those in calmer occupations, but still they enjoy life and have no more than their share of its physical and mental ills.

Without going too deep in a paper as limited and as untechnical as this one needs must be, I have to declare that as a broad proposition excessive speeding in any direction, automobiling perhaps more than most others, is not good for the mental powers. It is too intense. The automobile scorcher is the very natural successor of the bicycle scorcher, and was not he denounced and did not the alarmists see everlasting injury from his scorching? But these things settle themselves. A man is in as much danger from a horse as from an automobile. Compared with a horse a pig is a Socrates.

Soberly speaking, I do not believe that a man loses his brain power at eighty miles an hour, although it would be foolish to deny that he is under a terrific strain. It is beyond the speed to which

A GERMAN HEAVYWEIGHT CHAUFFEUR

the race has been accustomed, but it does not deprive the brain of its power. All these things, as they appear, become the targets for the superlative—the danger, great enough to the participant and to the man in the road, is extended by somebody to the mental faculties always.

I have seen many a man die with the most agonized look on his face. I have seen a bicyclist with exactly that same look. I presume the chauffeur from behind his mask is not a pleasant object. It is true that man cannot go fast by his own powers, but he likes to go fast; it is one of the traits of the race.

As for motormaniacs, it will be time enough to describe them when we have one of them under observation. Up to date he has not materialized. In the meantime remember that he gets most out of all things in life who follows none to excess. Moderate use of the great powers of the automobile is of undoubted value as both a mental and a physical tonic, but to abuse it makes of the automobile by perversion but another curse which science has mistakenly placed in the hands of those incapable of appreciating it.

What the Father of His Country Never Did

He never saw a railroad,
  Nor heard a steamer puff;
He never heard the gasolener
  When it chuffeth forth its chuff.

He lacked the simplest knowledge
  Of trolley cars or trams;
He never used a safety match,
  Or got marconigrams.

He never raced at Ormond,
  Or saw an Ibsen play,
Nor read historic novels
  With himself for center stay.

He never saw a repair man,
  He never told a lie;
How very rural George would be
  If he should wander by!

My Business Partner

By Dorothy Hopkins

A LONG illness had robbed me of my usual strength, together with the cash appropriated to a mid-summer vacation. There was left me, in consequence, my hospital experience, the surgeon's bill and a deplorable physical condition. "Six months of absolute rest and change if you wish to live," had been the doctor's subsequent orders. I did not object to the time limit—that was generous, and the rest and change would not be unwelcome; neither was I tired of life in the abstract, but, alas! my unenviable situation! By what means could I remove the financial barrier that deterred the enactment of those orders?

If I should essay to pilfer the requisite funds, the law would interfere, and I was too modest and unassuming to ask aid of the town. I was not created a "lily of the field," therefore if my vesture looked anything like Solomon's, I must toil for my gorgeous apparel. The ravens and sparrows may not lack for food, but a transient at a summer resort must pay board in advance. So, to "take thought for the morrow" seemed an imperative necessity for me.

The old-fashioned prefix of Miss still guarded my name, as no "Sir Launcelot" or "Prince Charming" had offered a substitute for it. I belonged to that vast petticoated brigade which daily goes forth to battle with life's problems, and to face the inevitable in all kinds of weather. "Victory" had sometimes been my battle-cry; at others, just a rush of tears at midnight in the privacy of my own room. But this was what had been; the future was now the problem to solve. At this juncture self-pity, like a porcupine's quill, bored its way into my courage, till I felt that of all the host of the children of Israel I was the only one ever really in the clutches of Pharoah. Ingratitude and discontent opened fire on my emotions, re-enforcements were nowhere in sight, and I felt a prisoner to despair.

But I had yet to realize that adversity may be but a disguised friend, whom we sometimes entertain with scant courtesy and are loth to invite to call again. Prayer and long cogitations on my hospital pillow at last threw light upon the possibilities of the occasion. Spring sunshine and an inspiration came together; and with recovery a fact I made a call upon one of the most progressive automobile agents in town, and had an interview with him in his private office.

"Mr. Thurlow," I said, "can I talk business with you a few minutes?"

"Yes, ma'm."

There was nothing undecided about that tone; it had the clear ring of business in it, and business not to be ashamed of.

"Are your automobiles of the 'Old Dobbin' variety, or are they coltish, frolicsome creatures?"

"That depends, as David Harum would say, on who has hold of the lines—or rather the steering wheel. You can run a sound horse till he's wind-broken, and misuse him so he'll stop and kick everything from here to yonder, when he's ten years old; so an automobile will give good returns for good care and consideration; and it might prove unsatisfactory if you asked more than was reasonable of it."

"But do you consider them safe for a woman to handle?" I asked with some misgivings.

"Perfectly, ma'm, if they are rightly understood."

My courage rose, and with an abundance of animation I unfolded my scheme, beginning by giving the whys and wherefores, what seemed possible,

and what I hoped to accomplish. My thoughts *as thoughts* made all seem probable, but habilitating them in cold English divested them of a certain tangibleness, and I ended by being sure he would declare it visionary and womanish. He crossed the room several times before answering, and it was like waiting in a dentist's office—I wished the interview over.

In the last few seconds of suspense I felt sure he was seeking some tactful way in which to make me conscious of the utter failure I was courting; my mind even suggested his going to my doctor, quietly, and advising a sanity commission to determine my mental soundness. What a phantasy hope is; how elusive; how little things affect its poise! As the pendulum of our emotions, what trifles shock it into dead silence or cause it to vibrate with unwonted assurance; only for the mainspring of faith back of it, what power could prolong its action at times? Tell me, ye men of experience, was this vacillating of thought, this rise and fall of mental temperature, merely feminine indecision, or are the lords of creation subject to like conditions and impressions? Do your theoretical exploits, when put to a practical test, raise "gooseflesh" on your mortal bodies as you launch out on some untried enterprise; or is there in such cases calm self-possession, as becomes masculine superiority?

The kindly form of Mr. Thurlow stood before me, and at last I prepared myself for the worst; just then I was glad he was the only friend to whom I had confided my secret.

"Miss Hopkins," he began, "I'm free to say I never heard of anything like it being done before, but it doesn't look at all impossible. You will certainly be a pioneer in this branch of the automobile business, but your success may emancipate other puzzled bread-winners and bless humanity in doing it." The feeling that came over me now made me feel light-headed and light-hearted.

"I'll tell you what I'll do," he continued. Then he sat down beside me, making me a genuine business offer, one that, considered the uncertainty of the deal, yet did not in any way subtract from my self-esteem. There was no condecension on his part, but instead a certain confidence in me, unconsciously betrayed, that made me braver than any financial consideration could have done. As a result I rented Mr. Thurlow's four-seated surrey, and took a number of lessons, both indoors and on the road, until I was able to command any ordinary emergency of automobiling.

Fate was not to find me napping and strand me upon some highway far from home through ignorance of how to manage the machine; a severe mishap, of course, would be another matter, and require an expert from the garage, which was understood. Mrs. Thurlow chaperoned and encouraged me in these first ventures, as indeed in all, and much pleasure was had over first failures and after successes. Without waiting to remove my hat, on my return one day, I sat down at my desk and proceeded to evolve a suitable business card which should acquaint the public, in a short, business-like way, with my prospective venture. I finally read this:

MISS DOROTHY HOPKINS
AUTOMOBILIST
112 Barclay Avenue
Shoppers Transferred — Phone 650
Messages Delivered — Office Hours
Household Errands a Specialty — 12:30—1:30 P. M.

A few days following a final visit to the printer, I started out to distribute some of these cards, sending others by post. I found myself getting faint-hearted again, and explained the scheme to my chum, Lou Belden, who was enthusiastic over it.

"Why, Dotty, that's a perfectly lovely

idea," she exclaimed; "now we poor mortals can go in modern style to our evening entertainments, and so cheaply."

"Tut, tut," I answered, 'I'm not conducting a trolley line!"

"Oh, but you're not a soulless corporation, either, to put up prices and oppress the poor! Give me twenty-five of those cards for my friends," she demanded, but I protested on the ground of unnecessary notoriety. It had been my plan to keep within the limits of acquaintances; second thought and common sense, however, required me to hide this aversion to publicity, and I handed out the desired number.

"Don't be foolishly timid," she began; "you are really conferring a favor upon the people of the community, and ought to feel the high-minded complacency of a philanthropist."

"Oh, you beguiling little prophetess of sunshine! I am going to someone who will be more practical," I said; so I went to Judge Laporte's and rang the bell. The maid took me directly to Mrs. Laporte, who greeted me with what I felt to be stereotyped cordiality, with just enough of surprise and curiosity behind it to make me feel like a fugitive from justice, standing before a magistrate giving myself up; but she listened to my whole story with polite interest.

"This is certainly an attractive innovation," she said as she glanced at my card, "and I hope it may prove successful." I murmured my thanks and ran down the steps as light in spirit as a wind-tossed feather. I grew radiant under those few words of appreciation as I wended my way toward Mrs. Sheldon Van Wert's.

Mrs. Van Wert was another whom I had thought of as unapproachable, living under an iron mask of reserve. "Two months in the hospital," she repeated in surprise; "I did not hear of it." And what had before seemed to me as steely gray eyes softened now with motherly tenderness. "How very bravely you accept it; of course you will succeed, and I trust regain your health. Will you go into the country with me to-morrow?"

That was helping to bring her wishes to pass in the most practical of ways. I answered in the affirmative, settled upon a time and went away in an indescribable frame of mind. On the way up the street I encountered Mr. Gaynor of the "Evening Times."

"Good afternoon, Miss Hopkins; what is this I hear about your automobiling adventures?" he asked cheerily. I told him and handed him a card.

"I wish you the best of success," he said as he bowed and left me. That evening's paper contained a short article in regard to my work, written in just that tactful way that could not offend or yet make me feel like a charity patient; but the thought that prompted it was what touched me the most. At that moment I regretted I had ever said:

"They tell me that the world is round,
But I sometimes think it square—
So many little hurts we get
From corners here and there!"

What were all these "little hurts" that had come to me in comparison with this great loving interest that was proffered with so much kindliness in my time of need? From avowed friends it was not surprising, but how about these unexpected sources? Did not this "Good Samaritan" and "Golden Rule" spirit demonstrate the universal trend of the world toward helpfulness as distinguished from charity? A feeling of security crept over me that calmed my troubled queries about the future. Surely, I thought, this experience is not without its purpose.

I called next morning at Mrs. Van Wert's, but she was too ill to accompany me, and I went to the country alone to do an errand for her. On the way out an inspiration came to me. After I had fin-

ished that errand, I asked, "Mrs. Ludwig, have you any more than enough butter to supply Mrs. Van Wert?"

"Yes'm, indeed," she answered; "twenty-five pounds or more on hand now—all grass butter—want to see it?" I inspected it merely as a matter of form; it tasted delicious, but might have been "butterine" for all I knew.

"I suppose you have eggs, too?"

"Yes'm," and she brought out a great pan full. I bought the whole of them—ten dozens. She packed them securely in oats and they were stowed away under the seat with the butter.

"Come again," she urged heartily; but I was skeptical enough to thing it was the crispness of that five-dollar bill and the chink of the silver that was the real source of her cordiality. A short distance down the road I overtook a pudgey little urchin.

"Bubby," I called out, "can you tell me what grass butter is?" He looked at me in astonishment.

"What yer givin' us?—it's what ever'body makes after cows goes to pasture" —then he ran out his tongue and made grimaces at me. He had evidently mistaken my motive for asking, but I did not explain; however, we both laughed.

"Jump in now, and I'll give you a ride," I said.

"Gee, but this is a 'peach,' ain't it? You're *it* all right on this road," he asserted, and his little tongue continued to wag. By adroit questioning I elicited much information that was valuable; in fact, I "pumped" this little man for all there was in his cranium of farm lore, in the meantime realizing how one-sided my education was.

"What is coming up there, Bubby, with those drooping leaves," I asked, calling his attention to a field laid out in perfect regularity. He gave me one of his quick, comprehensive glances.

"Them ain't nothin' comin' up—they's cabbage plants jest *set out;* don't you know nothin'?" he asked, his tone so tinged with sympathy and innocence as to rob his question of all impertinence.

"Very little about the country," I admitted; "you will have to teach me."

As I drew up before his home I gave him a quarter. "Say—be you a 'Fairy Godmother?'" he asked wonderingly, bestowing loving little pats on the silk sleeve of my shirt-waist and the feather boa about my neck.

"Why?" I queried.

"'Cause you're a 'crackerjack' if you be—but you *are* a really-truly woman, ain't you?" and I confessed that was what I tried to be. I fully believe the questions I put made him fancy I was not of the flesh-and-blood makeup. I asked him his name.

"Joey McDowell—say!" he ejaculated, clasping my hand in both his chubby ones—"you come up some Sat'day, and we'll go fishin'."

"All right," I asserted. An intangible something made me wonder if it were an embryo Judge, President or Humorist that had been entertaining me.

Mrs. Van Wert bought three dozens of eggs and sent me to a new customer. "It's grass butter," I ventured as Dr. Bidwell put his aristocratic nose over the jar.

"Of course, it is," he assented; "it's colored with the sunsets that sank out of sight just beyond our old pasture at home, and I can smell cowslips and sweet clover in it."

"The poetical side of your nose is remarkable," I said, laughing.

"Yes, but you see I was raised on a farm, Miss Hopkins."

"Why did you leave it?" I asked abruptly.

"Oh, mainly to get acquainted with the world."

"Just why I would like to go on a

farm," I returned, "to get acquainted with nature."

"She's a pretty fine old dame, but not much given to telling secrets till she's quizzed a good deal; but what's the price of this?"

"Thirty cents," I answered.

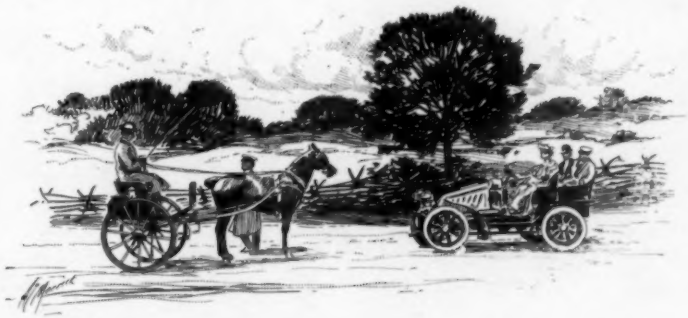
"Cheap enough! I paid thirty-two for creamery less than two days ago." (Here was another pointer; I must watch the market reports.) He bought twenty pounds, and nearly took my breath away; I had fully expected to run hither and thither with it.

* * * * * * * *

My orders began to come in quite as fast as I could attend to them. I matched ribbons, laces and dress-goods, and sought specialties for particular people. I chaperoned inexperienced maidens in their shopping, and guided and guarded elderly ladies through bargain-day sales. Lovers commissioned me to buy suitable gifts for their sweethearts, while one over-timid fellow begged me to select the engagement ring for his fair one. Wives ask me to find something suitable for "John" or "James," and these dutiful husbands consult me on what to get for their wives, even where they do not entrust me with the purchase of them. I have even turned from dainty mulls and embroideries that grace the beginning of baby-days to select a shroud for a cold, still form in middle life.

The gauzy material for the debutante's dress is measured at one counter, and mourning for a widow at another. At the florist's it is bride-roses for the living, and immortelles for the dead. I place an order at the caterer's for a society event, and at the grocer's, half a square away, give a charity order for a poor family in the suburbs. Thus the grave and the gay are blended in my new work; but never did I imagine so many needed help until I placed myself at the disposal of the public. The automobile has made it all possible, and now I have a contract with Mr. Thurlow to turn what I pay for rental of my machine toward its purchase price; and it promises to be mine not long hence.

I see plainer than ever before that the needs of people suggest ways in which I can serve them. The graduating class at the Academy besought me to take them to Forest Park, a little summer resort up the river, in June. I went with the "Bachelor Girls' Club" to Brockton Sands for a day's outing in July, and a bridal party hired my machine for a moonlight trip to Bergen in October. On state occasions I rent a luxurious tonneau car, and prices correspond to the style. Once an emergency and the police pressed me into service, and I took an injured man to the hospital, while yesterday I picked up a lost waif on the street and carried him back to the parental roof. So each day works out its own record, which in the aggregate is pleasure, profit and health!



The Motor Problem: A Road Problem

By W. R. Jeffery

WHEN that great seer of the nineteenth century, John Ruskin, said "All social progress resolves itself into the making of new roads," he came nearer the mark than most prophets ever do. It is because the American people have literally forgotten how to make new roads that progress limps. The tenement problem, the traffic problem, the unemployed question, the problem of agricultural dissatisfaction, have all been aggravated by this neglect to make new roads. Without further laboring the point to, I hope, a converted audience, I shall proceed at once to the practical side of the problem, viz., how are wider and better roads suitable for automobile traffic to be provided? I want also to consider for a few moments the secondary question, viz., having once secured the roads, how we can make the maximum use of them. The problem, therefore, naturally falls into three divisions—(1) How to construct new roads suitable for rapid traffic; (2) How to improve and widen the roads that already exist; and (3) How to regulate the traffic on both the new and the improved roads.

I frankly admit that it is to the first of these questions that I attach the greatest importance, viz., How can new roads suitable for rapid traffic be provided? But it will be obvious that the provision of new roads through and out of the great cities raises at once financial problems of enormous magnitude. It is easy enough to put forward schemes for building roads. To realize such schemes it may be necessary to find a statesman combining the financial resourcefulness of a Lincoln with the driving power of a Roosevelt.

There was once an Emperor who picked out an able man and told him to improve his Capital City. That man did so at the cost of one hundred and seventy-five millions of dollars, until the Parisians would stand the increasing taxation no longer. But there is not a Parisian to-day who would undo the work of Baron Haussmann, even if it had cost seventy instead of thirty-five millions. Everyone is now prepared to admit that no better investment of public funds has ever been made. As a result of the expenditure of that hundred and seventy-five millions, Paris is to-day one of the best laid out and attractive cities of Western Europe. London is, on the other hand, the most squalid and ill-designed. Paris is a monument to forethought and system; London to the happy-go-lucky policy of muddle.

We have, fortunately or unfortunately, no place for a dictator in the local government system of this country. Social progress has to make its way inch by inch, by means of more or less unsatisfactory compromises between many conflicting interests. Here the task of arranging terms with conflicting parties is one of exceptional difficulty, for we have to deal with so many local authorities and officials with statutory powers and no brains therefor. The United States has been delivered over to innumerable authorities all more or less jealous of one another—all strong enough to prevent or delay the carrying into effect of schemes for the general good. But these difficulties must be overcome if we are to secure the building of new roads. How they may be surmounted is the principal question I shall ask you to consider with me.

I have come to the conclusion, after carefully considering the problem from

every point of view, that if these schemes are to be realized it must be largely by private enterprise and private capital. If new trunk roads are to be built, trunk road building must be once more brought within the domain of private enterprise. This may seem a somewhat startling conclusion.

Hitherto legislation has only granted to railways and other companies compulsory powers to acquire land for the immediate purpose of the undertaking. A new precedent must be created. The promoters of the road must be permitted to acquire compulsorily the land which their road would improve. The road-building company would, after it has constructed the road, be in a position to sell or lease this land at very greatly enhanced values, and that enhanced value would not only pay for the cost of the road, but leave a considerable profit. The company would be far more than a road company. It would be a land development and transport company. It would build houses as well as roads; and the profits from lands and houses would yield a handsome return upon the sum invested—a return which would increase as the city developed and the population increased. I venture to advance, as a general proposition, that in a growing industrial district, where population is increasing, the building of a new arterial thoroughfare would increase the value of the land through which it passes, and if that increased value can be secured to the builders of the road, it becomes at once a financially practicable undertaking. The position may be summarized as follows:

(1) New motor roads are necessary to the full use of mechanically-propelled vehicles.

(2) That there is no reasonable expectation that such roads will be provided by (*a*) the State or (*b*) the local authorities.

(3) That there is a possibility of inducing private enterprise and private capital to build such roads, with perhaps some small assistance from the State and the local authorities.

Whether motor roads are provided by private enterprise depends almost entirely upon the Automobile Club of America. It is the only organization sufficiently interested and with adequate resources and influence to take the initiative in the matter. It need hardly be pointed out that the Club has only to show the way and others will follow. Demonstrate that the building of trunk roads is a profitable form of investment for private capital, and capitalists will undertake the work for every large town in the United States.

I suggest that the following course of action should be considered. The Club should formulate a cut-and-dried scheme for a new road out of New York. The scheme should show as exactly as may be (1) what such a road will cost; (2) what conditions are necessary to secure a profitable return upon the money invested. The Club could say: "Gentlemen, if power can be granted to comply with the conditions necessary to make the building of this road a profitable undertaking we will form a company and raise the money to build it." I venture to suggest that a new road from fifteen to twenty miles long can be profitably built through the suburbs over on Long Island if the following conditions were complied with:

(1) That compulsory powers are given to the promoters to acquire a strip of land fifteen, twenty, or more miles long and a quarter of a mile wide, *i. e.*, the land for, say, one-eighth of a mile upon both sides of the proposed road.

(2) That the promoters are permitted to build, in addition to a track

for the horse-drawn traffic—which will be taken over and maintained by the local authorities in the ordinary way—(*a*) a car track for both passenger and freight traffic and (*b*) a road for motor traffic solely.

(3) That the railroad track and the motor track remain the property of the company, who shall be permitted to charge tolls for their use.

An arrangement preferable to the levying of tolls upon the traffic using the motor road would be the payment by the State of an annual sum in respect thereof. The sources of revenue to the company would be—

(1) The ground rent from the land let on building leases and fronting upon the road.

(2) The profits from the railway track over which garden and dairy produce would be carried throughout the night.

(3) Tolls from the fast traffic or contributions from the State or local authorities in lieu of tolls.

(4) Subsidiary source of income, such as the supply of electric current to the houses in the estate for lighting purposes, to factories for manufacturing purposes, and to owners of electric cars. All the hotels upon the estate could be profitably kept in the hands of the company.

I suggest, therefore, that a scheme can be drawn up which would attract private capital if the Legislature will sanction the compulsory acquirement of the land. The investing public would be asked to place their money in the most valuable security in the world, viz., lands and houses in and near New York. Money can be got to develop land in South Africa and South America; it could be got much more readily to develop land in and near the capital city of the New World. I could adduce figures in support of this view, but I do not think you wish to be troubled with statistics. I might mention, however, that mainly as the result of building new through roads land in the outskirts of Berlin, which could be bought sixty years ago for $5 per Prussian acre, is now valued at $7,500 per acre. I submit that the Automobile Club could not spend $5,000 to more advantage than in securing the services of an eminent road engineer, a leading surveyor and valuer, and an able lawyer to prepare a definite scheme, which could be laid before the Government for a new motor road out of New York city.

An Anti-Steam Argument

While the scientists have been perfecting the motor vehicle and, incidentally, trying to discover its inventor, a certain small boy has settled the latter point to his own entire satisfaction. At Sunday school he is very attentive and imbibes information of Biblical matters which he uses in the dull routine of everyday modern life.

A short time ago at a large dinner party at his home, where the new and delightful means of transport was the subject of conversation, he broke forth as follows:

"I know who invented the automobile!"

A flattering silence momentarily fell; then, "Well?"

"God!"

"Oh, Dick!"

"It's true, mamma!"

"Prove it, my dear!"

"Why, wasn't Elijah caught up in a chariot of fire, with horses of fire, too? Now if that had been real fire it could not have come from heaven, but from——"

"Dick!"

"Well, you know what I mean. So I guess that God used gasolene or electricity!"

How the Records Were Made

By W. J. Morgan

IT was suggested recently by some automobile editor, who occupies an airy and windy perch in a noted building, where things blow away and the breeze is always fresh, that a committee of experts be appointed to go to Florida to examine the now world-famous Ormond-Daytona Beach race course, where representatives of the nations will in future do battle for international honors, and where alone can the speed levers of the mighty flying monsters be pushed over to their limits, giving "Father Time" all that he can do to keep up with the racing meteors.

The suggestion was evidently made in good faith since it was made editorially. At the same time the wise would-be beach investigator said he thought there was a great future in an automobile way for Florida, providing that cliques did not get control of the wind-driven beach.

The fact that a mile had been already accomplished by a far from superior machine in the then fast time of 51⅘ seconds was entirely ignored by the man who wanted "experts." So it came to pass that it was up to me to do a little expert investigating and demonstrating business, just to satisfy the gentleman on the airy perch and the few who like him had their doubts. It was done. The types on January 4th told everyone that the best previous world's records had been eclipsed on the Ormond-Daytona beach the day previous, when the Packard "Gray Wolf," a machine of 1,500 pounds, had rushed through a mile's space in 46⅘ seconds, coming within ⅘ of a second of the time of a French machine which was equipped with almost three times the Gray Wolf's power. The Packard performance must, therefore, be classed as marvelous, and as going to conclusively prove that in the Michigan factory the American people have a most promising speed producing representative, whose managers and drivers have no trouble with either water in their gasolene, or with sand in their cylinders.

The Gray Wolf's run was a clean-cut performance, worthy of the men and

machine from Detroit that made it. A bit of laurel then for Sidney D. Waldon and Charles Schmidt, the daring French driver with a German name. No two men were more serious or more energetic than these two representatives of the Packard Motor Car factory. Before going further I want to make a confession. It it had not been for the extraordinary insistence of Mr. Waldon the world's record would never have been made, and we would have been content to have come back from Florida with the 50⅘ seconds made on Saturday, January 2d. The patron saint of the beach, J. F. Hathaway, of West Somerville, Mass., was with Mr. Waldon and some others in an automobile on the Saturday night on the streets of Daytona, where I was walking. They hailed me and said they hoped that my determination that the record attempts should cease would be modified, because a north wind was coming up which would strike the beach about Sunday and they wanted one more attempt granted them to knock 50 seconds out. After absolutely declining to accede to their wishes, a meeting was called of the Association and the matter was discussed pro and con. There was about an even division of opinion; but President Seelye and Secretary Parkinson were emphatic in the position that if I thought it best not to try and disturb 50⅘ it would not be done.

It was finally arranged that the Packard people should try for an unofficial mile, but when I saw Mr. Waldon the next morning and his lengthy face I was smitten with contrition and as the timers were ready and had been thoroughly drilled by Mr. S. M. Butler of the Automobile Club of America, who had given

MESSRS. WALDON AND SCHMIDT READY FOR A RUN

SOME OF THE INTERESTED AND INTERESTING OBSERVERS

his word that they could time equally as well as himself, I told Mr. Waldon to go ahead, then as I had some urgent business to attend to in Ormond I delegated A. G. Batchelder and H. C. Orndorff to represent me at the trial. In the meantime the officers of the Florida East Coast Automobile Association had been notified by telephone to be present and supervise the arrangements. Mr. Batchelder, who held a watch, is a well known authority on athletics and an expert timer, stood over the electric clock with Mr. Orndorff, a Worcester driver of a Peerless car, and they declared that the time made by the Packard was $\frac{1}{5}$ of a second faster than the time recorded, so that the Packard actually came within $\frac{1}{5}$ of a second of the big-powered car's world's record, instead of the $\frac{2}{5}$, the time allowed.

The wind had come up strongly and was blowing from the northeast at the rate of from about 20 to 25 miles an hour when the trial was made. I do not believe, of course, that the wind was of any assistance, with the exception of aiding displacement, and the stronger the wind up to 80 miles an hour, of course the less resistance the driver meets with.

The arrangements for the trial had been made for two or three months ahead. I first invited the Packard Motor ar Company to go to Florida for two reasons. Harry Cunningham, the old "Gray Wolf" driver, had told me in response to a question, that no one had up to that time dared to open up the engine of the "Gray Wolf" to its limit. At the Detroit meet I closely observed the going of the machine and made up my mind that there was more in it than had been gotten out of it and I told Mr. Joy, of the Packard Company, so.

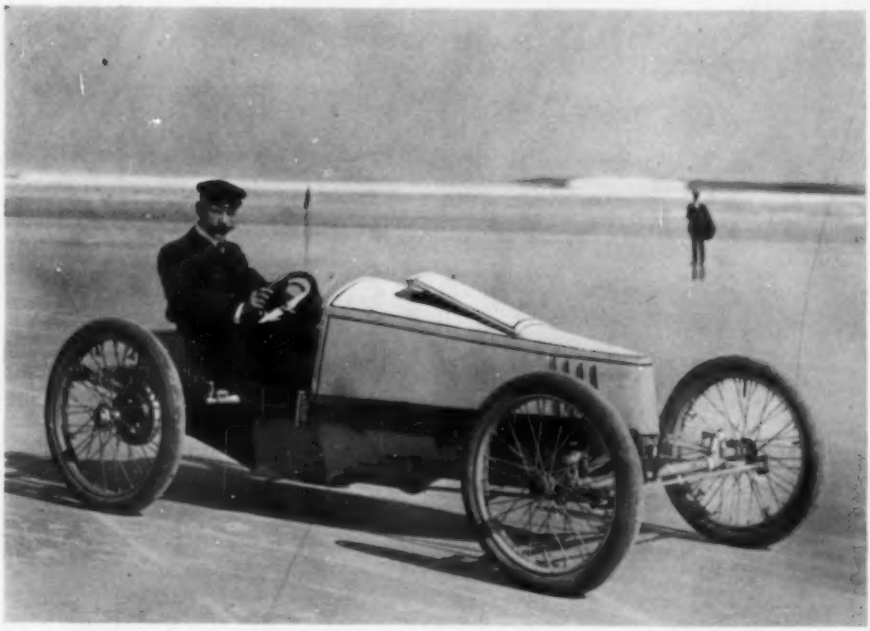
In the meantime that clever New England firm, the J. Stevens Arms & Tool Co., of Chicopee-by-the-Falls, Massachusetts, had sniffed of the recordbreaking breeze and the alert and efficient sales manager of the Stevens-Duryea people, Charles C. Hildebrand,

came to New York and suggested sending their car to Florida. The Packard Car Company were consulted and as they offered no objection arrangements were made for both firms to try for records, each car being in a different class. Then the service and interest of Secretary S. M. Butler, of the Automobile Club of America, were enlisted, and the Automobile Club of America board and on December the 26th a party of eight boarded the Seaboard Air Line Pullman for Florida.

A blizzard was coming up and the party were glad to leave New York and start for the land of sunshine, oranges and record-breaking beaches. The record hunters were Otto Nestman, driver of the Stevens-Duryea racer, C. C. Hildebrand and J. Frank Duryea; A.

ON DAYTONA'S HALIFAX RIVER

of governors courteously tendered the use of the Mors electric timing clocks, which Mr. Butler has used so well in times past in the way of timing record feats. When all this had been done, Chairman A. R. Pardington, of the Racing Board of the American Automobile Association, with his usual progressiveness, granted a sanction for the trials, G. Batchelder, representing Motor and the Hearst syndicate of papers; S. M. Butler and Messrs. Waldon and Schmidt and the writer. The racing cars had been already shipped, the "Gray Wolf" meeting with her usual bad luck as the Express company at Cincinnati—the American, I believe—transferred the machine to the South-



CHARLES SCHMIDT DRIVING THE PACKARD "GRAY WOLF" RECORD BREAKER

ern Express Co. and there she struck a snag and a bone that the "Gray Wolf" could not bite.

It seems the Southern Express Company have not delved deeply into things automobiling, for they had no express car with a door wide enough to admit the comparatively small "Gray Wolf." With the usual easy-going way of the Southerner, the Express Company turned the racer over to the freight people, saying that it would go by "fast freight" to Ormond or Daytona. The "fast freight" arrangement worked out disastrously since the machine with the brute name got tangled up with some bales of cotton in Tennessee and was found on a siding two weeks later, after much money had been expended by the Packard people and the Florida East Coast Automobile Association and the Florida East Coast Railway, in telegrams.

Finally the car in which the "Wolf" lay was cut loose from the cotton bale trucks and was attached to an express train and eventually it landed at Daytona, after the party had waited three days for it. When it reached Jacksonville, J. P. Beckwith, the efficient traffic manager of the Florida East Coast Railway, sent it to Daytona behind a special engine, and the machine in the end got on the beach in good condition.

In the meantime Otto Nestman had the Stevens-Duryea 985-pound machine in good shape and had felt out the beach in a warming up way. The Stevens-Duryea party made one discovery in a short order, and that was that cemented on tires will not stand the strain of beach record breaking. The first shot out of the box showed that the old record made by the Oldsmobile "Pirate" had received tremendous fractures and its 1.06½ for the mile was replaced by a mile done in better than 58 seconds. "She can do better than that," said Nestman, "but not with these tires;" and he verified his statement at

the next attempt by doing 57⅛, but in doing so he ripped off his tires, lugs and all. After new tires had been provided Nestman let fly again at the mark and succeeded in doing 57⅜; but when he finished he called the writer's attention to the fact that he would see daylight between the tire and the rims of the machine, so it was thought best after doing a 5-mile record for 1,000-lb. machines of 4.57⅛ to let well enough alone and not take any risk of an accident. This opinion was upheld by both J. Frank Duryea and Mr. Hildebrand and met with the approval of the officials, whereupon the little flyer was promptly crated and shipped to New York covered with a mantle of glory. Of course it proved that clincher tires are the only safe ones to use when racing on the beach, since the terrific strain through the speed attained makes it impossible for anything but a firmly attached tire to stand it.

The Packard Company had already annexed the 5-mile straight away record, beating the record made by Winton on the beach somewhat badly; but Schmidt was after the record of Barney Oldfield of 4.40⅕ made at Los Angeles last November with the 120 H. P. machine known as the "Bullet."

Driving like a demon possessed, Schmidt came by the starting clock as straight as an arrow and was soon a speck in the distance, the Packard engine working magnificently. Soon the telephone from Mr. Butler flashed the news 4.21⅕, and when the victor returned to the starting point the assembled crowd gave him a great vocal welcome interspersed with waiving of hats and sunshades, to all of which the modest and popular driver responded: "I will beat that soon or you cut my neck off," making a sweep with his hand across his throat in a somewhat guillotinish sort of fashion.

Timer Butler had drilled his electric corps so well that the "cut outs" and connections with the wires were made promptly and accurately, for all of which a lot of credit is due to Mr. Butler, for the efficiency and great interest he displayed in the Florida trials were something beyond price.

The correctness of the timing cannot be questioned as the fact alone that in each of four attempts Mr. Schmidt came within ⅕ of a second of each preceding mile's time which shows how uniform the Wolf was running and what a magnificent driver Mr. Schmidt is. The Kilometer in 29⅖ was another wonderful drive by Mr. Schmidt.

The 15 miles of telephone and telegraph wire were ready as promised by the Florida East Coast Automobile Association committee and the long row of poles on the beach right up by the sand dunes out of the way looked like a row of sentinels standing guard over Old Ocean, on which bosom many record chips floated out into space during the days we devoted to attempts at something fast.

The record trials again demonstrated what I had always claimed for the beach, which is that it is not only the fastest, but also the safest course in the world, and that all future contests will undoubtedly be held there if safety and speed are the prime factors looked for.

After the trials were completed the electric clocks were given in charge of the F. E. C. A., who promptly locked them up in a vault in the bank, from whence they will be brought forth for the big tournament, when great will be our astonishment if further records are not annexed for the glory and prestige of American automobile building; though it seems to be a foregone conclusion that even Barney Oldfield will have his work cut out to beat the fast foreign machines entered for the races.

OTTO NESTMAN DRIVING "STEVENS-DURYEA" MILE AND KILOMETER RECORD HOLDER.

Only one thing will save him and American prestige, and that is the possibility that the immense horse power at his disposal, if all goes well with his cylindrical octette, will save the day. Let us all hope that this will be so, for should it come that way it will give a tremendous impetus to American speed car building.

An interview with Alexander Winton in the New York *Sun* April 1, 1903 (appropriately enough "All Fools' Day"), made Mr. Winton say that the Florida beach was not as fast as the road, and that he had done 10 seconds faster on the Cleveland Boulevard than on the Ormond beach, which would have made Mr. Winton travel with his old "Bullet" at the rate of a mile on the road in 41⅘ seconds, which was a good deal faster than any man on earth had ever driven a machine at that time. Mr. Winton modestly, however, stated that the time made in Cleveland was unofficial. He further said that as he had just come from Florida, and he thought a winter race meet would be a good thing and as he would go there again next year, he did not want to cast reflections or sand in the cylinders of the Florida East Coast Automobile Association; but Mr. Winton allowed newspaper men to credit him with saying that the sand on the Ormond course had ruined the cylinders of the "Bullet," and the recent trials were made in order to disprove the alleged Winton assertions, which had frightened several drivers who owned Wintons.

Man vs. Machinery

"The displacement of men by machinery has been something great in recent years."

"And it is still going on. Only yesterday I was going across Broadway, and found myself displaced by a little, stinking, four by six automobile with great precipitancy."

Use and Abuse of the Gas Engine

By C. C. Pittman

ONE needs not go far to hear some person say very gravely: "For something reliable in the engine line give me good old steam." As a rule, the speaker knows little about a steam engine and nothing about a gas engine, but that never deters him from relieving himself of an opinion similar to the one I have quoted above.

Before the United States Government permits anyone to run a steam engine, it requires the operator to actually understand the principles and operation of the engine; then, if he abuses it, he does so not from ignorance but through neglect, for which he is held accountable. With the gas engine, not only is the operator required to know nothing, and is usually fully up to the requirement, but he is helped along by the selling agent in the delusion that the gas engine will run itself. The very natural result is he starts out with a few supplies, and they are perhaps of the kind not suited to the purpose for which they are used, and he expects to run the gasolene motor until he gets tired and then leaves it uncared for, only to come back when he likes, and repeat the operation. Under such conditions is it not a wonder that the engine runs at all?

The most serious mistake, and the one oftenest made in running a gas engine, is the lack of attention paid to its lubrication. All other things being equal, improper lubrication will cause more gas engine trouble than any other one thing.

Not only does the piston if improperly lubricated become dry and thereby cause great loss of power through the increased friction resulting, but the engine loses its compression and the neglect can go to the point where the piston becomes superheated, since the heat due to unnecessary friction is added to the heat resulting from the explosions, which causes the piston to expand more than it should, with the result that it sticks or else cuts scores in the cylinder. All of this is particularly liable to happen if the piston is the good fit it should be in any well-built engine.

Lubricating oil should be of high fire test, heavy bodied, and fed regularly. Irregularity of feed not only causes the engine to act spasmodically, but it requires much more oil than if a regular feed is maintained.

Anyone who understands an engine, never allows any of its oil cups to stop feeding, but sees always that they are run with the least variation possible. He knows also which of the bearings has the greatest tendency to heat; if there is any dirt in the gasolene; how many hours the engine will run before the igniters become covered with soot or corroded; the state of the electrical current, and if the water circulation is doing what it was designed to do. If the man in charge of a gasolene engine attends to these things, the engine is sure to run for one hundred and fifty hours without trouble. After this length of time the engine should be cleaned by one who understands the work.

Any one possessed of an observing turn of mind can go to almost any yacht club and hear persons brag of how they ran certain engines that no one else could run, and what wonderful feats they had performed with them, when in reality they had barely done what any one doing his duty with the same engine would have accomplished. At the same time there may be a dozen engines of exactly the same make and power doing as much, and may be more work, without comment.

Again, and not quite as rarely as I

would like to see it, the gas engine has to stand the blame for the mistakes of the designer, the builder and the man who places it in a boat.

It is an occurrence so common as to rarely cause any comment to see an engine thrown into a boat, out of all proportion to its size, poorly fastened to an entirely inadequate bedplate, and as much as an eighth of an inch out of line. Invariably the owner, despite all of this, expects his boat to go as fast as a steamboat that is fitted out in first-class manner with double the power.

A gas engine properly designed with liberal length of trunk, weighing approximately one hundred pounds per horse power, with large shaft and long bearings, then properly installed in a boat lined up with the same care that is used in installing a steam engine, with all of its pipes correctly proportioned and handled with the care that any engine deserves, will run successfully ten hours per day for five years. During this time the cost of repairs will amount to a very small per cent. of what a steam plant of equal horse power would demand, while the care necessary to maintain the gas engine will have been only a small fraction of what would have been demanded by the steam plant.

It is a pleasure to note, however, that the misery that has been woven about the running of a gas engine in the past is fast disappearing.

The gas engine is in reality a short route from cause to effect, from fuel to power, and a good route, too, provided the engine is given the care that is given to all other kinds of power.

There is little or no mystery about any of its little peculiarities. To any one who cares to take notice, each irregularity will be found to have a cause which is easily ascertained and quite as easily remedied. If there is a miss-fire, there is some good cause; if there is an explosion in the exhaust pipe or one in the admission pipe or in the base, depending on the type of engine, there is sure to be found a very simple and easily remedied cause for it.

Of course, in so brief an article it would not be possible to point out all of the irregularities which might come to a gas engine, nor to explain them as they should be explained, nor can the merits of the two distinct types of engines be compared as they should be, but suffice it to say that ordinarily a gas engine gives results in proportion to the care it receives, and usually of the same quality as the care. Since there are almost as many kinds of attention as there are persons, it is necessary to stipulate the quality.

To sum up from the fuel to the power, the gas engine will give better results with less first class attention than any other power known.

Progress at Home and Abroad

By Robert Bruce

AUTOMOBILE interests are advancing with very rapid strides wherever throughout the world the recreative instinct combines with a popular interest in mechanics and new forms of transportation. This is particularly the case, of course, in the United States, Great Britain and on the European continent. The motor vehicle productions of each country not only reflect in a singularly direct manner the current mechanical practice from which they have been severally developed, but they serve also to index different national conceptions of the problems of automobilism, and to create special individualities in the course of their progress. Hence the prodigal diversity in theories and designs at the present time exhibited by the automobile shows on both sides of the Atlantic.

Surprise has frequently been expressed that France should have at first assumed and so long retained its leadership in the manufacture and use of the automobile; while, on the other hand, it is not generally understood why Great Britain, and in particular the United States, should have so much later recognized the great and growing demand for automobiles. The reason why these conditions have prevailed are made more apparent upon reference to some important historical facts bearing upon the subject.

Mechanical transportation has been a dream of European mechanical engineers for upwards of a hundred years. Various forms of vehicles built to serve that end have been practicable—that is, capable of operation—in some imperfect shape or other, for decades. Since Richard Trevithick's experiments, in 1802-4, at least, there has always been at some place or other in Great Britain or on the Continent, one or more models of horseless vehicles capable of self-movement on the open roads, under control by the operator. The latter has until comparatively recent years been called almost exclusively by the title of "Engineer," as will be noticed upon reference to old-time files of leading scientific publications, both here and abroad. The reason therefor is obvious when it is remembered that steam was for a very long time the only motive power seriously considered for road traction, the electric motor and the gas engine being alike unknown.

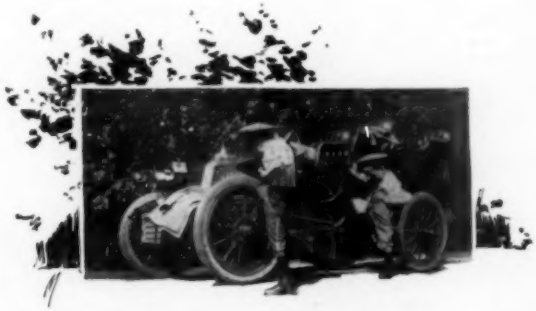
In the United States an unparalleled era of railway construction and extension —called for by reason of the great distances necessarily traversed by passenger and freight traffic—was the one conspicuous development of the nineteenth century. Meanwhile, all other forms of transportation were placed at a disadvantage for constructive energy and public support. British commerce was during the same period expanded to world-wide proportions. Incomparably ahead in long-distance carrying, the American on land and the Briton on water, they had both lagged considerably behind in devising the right sort of means for covering short distances with economy and speed. The unpreparedness of most highways in the United States had something to do with our national backwardness in this respect, as had also the wide separation of our centers of population. To connect them by rail was usually a lesser problem than to connect them by road.

While French laboratories and factories busied themselves with pioneer design and construction of automobiles to a greater extent than the experimenters of any other nationality, the superior French roads offered encouragement for

the use of every practicable type of machine. Among modern peoples, too, the French are the most enthusiastic in their appreciation of new and novel inventions, and the most prompt in reducing them to tangible forms. Thus did the national temperament, seldom over-critical in the event of a new opportunity to lead the world in fashionable enterprise, seize upon the automobile; and for a long time the Parisians excelled all other peoples in the ardor of their devotion to the new means of recreation and sport.

The industry in the United States, however, began in quite another way; and every advance made has been with a view to meeting the severest requirements of all-around, all-year service. Neither high speed nor lightness of construction can be had at the expense of durability. Roads must be taken as they are to-day, not as they ought to be, or as they will be a hundred years hence. Street pavements and road surfaces of many kinds must be traveled over, and mud, mire, and standing water at times gone through. Upgrades and downgrades must be negotiated without hesitation or needless danger, and even the snows of winter be made to yield passage. The light runabout and the heavy autotruck must overcome much the same obstacles, but in ways and means essentially different. Thus it would be possible to continue indefinitely, simply listing the various trying conditions in which an American automobile might, within a single twelvemonth, be expected to give a good account of itself and justify the reputation of its maker.

But the superior commercial basis of the automobile industry in the United States is well calculated to lead, very shortly, if not already, to the production of large numbers of highest grade vehicles in advantageous competition, price and quality considered, with the world. After the general lines have been decided upon, the manufacture of automobiles is very largely a matter of superior automatic machinery and intelligent workmanship, in both of which particulars the New World excels the Old. A very important element in wood-and-metal manufacture is the supply of raw materials of the best qualities. All these things are most abundant in this country. Capital is available in plenty for the fair and expeditious test of every promising idea or device. Public interest and confidence have been aroused to the point where sufficient support for every reasonable need of the industry is quickly available. All this is a sure sign of better faith on the part of the public, and the promise of still greater things for the automobile products of the United States.



Time to Begin

By Jennie J. Vesey

FROM the very beginning of automobiling there has always been a number of persons who have announced themselves as firmly determined to buy an automobile some day, but who have been waiting, and are still waiting, for what they consider a "perfect" motor vehicle.

Of course, many who express such sentiments are not sincere, and are merely endeavoring to disguise an inability or a disinclination to expend the price of a good automobile, but undoubtedly there are others who are actually waiting in good faith for the coming of their ideal vehicle. Their idea is that some wonderful system will be brought out which will render all present machines fit only for the scrap heap, and so they wait and wait, missing years of enjoyment, for the car which never comes.

As a matter of fact there is very little probability that the car perfect in equipment and satisfactory in price will ever come, and there is nothing in the history of other important inventions, such as the bicycle, the sewing machine, or the many applications of electricity, for example, to warrant any such expectation. In almost every case the differences between the earliest models and those of the present day are comparatively unimportant, and while many improvements have increased the efficiency and modern methods of production have lowered the prices of the apparently perfected article, the fundamental principles of operation have remained the same.

Similarly as regards the automobile, it is the general opinion of well-known constructors and others best qualified to judge that the lines on which future development will take place are already well defined.

The tendency is not for startling innovations, but rather for taking existing systems and gradually improving them, as experience shows that such action is advisable; but even this process must be very gradual. If an improvement be thought of to-day to a standard pattern engine or gear made by any good firm, it will probably be nearly a year before it will be embodied on the cars turned out by the particular makers, as it will be tested carefully, and possibly modified a dozen times before its final form is decided.

These things are being continually done by the manufacturers, but the automobile world never hears of them, as many changes which appear to be very promising are found in the long run not to be improvements, and are discarded, possibly to be taken up again a few years later, and found wanting once more, by some other experimenter. This is the

history of other mechanisms, and it will be found that all the most successful and practical have been gradually evolved in this way.

Therefore the would-be automobilist may safely go ahead and purchase the car which best meets his requirements among existing models, with a certainty that no revolutionary inventions will make it obsolete before he receives an adequate return on his investment.

Look to the Steering

From the driver's point of view the most vital part of the vehicle he uses is the steering gear, since any failure of it to act promptly and correctly leaves him suddenly and absolutely helpless, while, if the speed is fast, and the road a dangerous one, a very serious accident may occur. For this reason the connections should be inspected regularly and carefully. As a rule, the nuts securing the various joints are strongly pinned, and as long as the pins are in position, they cannot drop off, but even so they should be looked over before each run. If there is no safeguard of this description, the motorist should make a point of attaching some arrangement which would secure the connections, no matter how loosely, should they come adrift. With such a contingency provided for the car could be steered long enough to enable the driver to pull up.

Desirability of Fatness in Sparks

The fatter and hotter the spark the more rapid is the combustion of the charge, and consequently the greater the power which is developed in the engine.

The combustion of a cylinder charge may be likened to the rippling of water after a stone has been thrown into it. When a small stone is dropped into the water you notice but a gentle ripple extending, of course, in circles, having the place where the stone entered as a center; whereas, if a larger stone be dropped in the ripples are more violent, and they extend over a greater area.

Exactly the same thing happens in a motor cylinder, for a charge does not ignite at once; but, considering the high speed at which motors are running, it takes a somewhat lengthy period for ignition to occur. Therefore, when one has a big, hot spark the ignition effect is greater, and consequently combustion is more complete.

There is no doubt that the power would be materially increased if a second sparking plug were added—say one on each side of the cylinder—but makers are loth to do this, as the ordinary automobilist's greatest difficulty at present is with the electric ignition.

Yet for one who is thoroughly conversant with it, and does not object to the possibility of the extra trouble which may be involved by the fitting of a second sparking plug, a certain increase of power of the motor will undoubtedly be obtained by this without a larger consumption of gasolene.

The Wear of Link Bolts

Points of considerable wear unsuspected and unattended to by many experienced by owners are the bolts by which the springs are connected to the frame, particularly the free or linked end of the spring. When the car is in motion there is constant friction upon the top and bottom halves of the respective link bolts. There have been cases where these bolts have been worn down by grooving as much as one-eighth of an inch below their original diameter, and that after only about four months' use. Much may be done to reduce this wear if the bolts are regularly oiled around the links and the eye at the opposite end of the spring.

Importance of Springing

By R. E. M.

PROPER or imperfect springs will frequently make or mar a car. Few things are more important, even vital, than the hanging of the body upon springs that will neither be rigid and unyielding nor so weak as to let the body pound constantly.

Both in the quality and the quantity of the steel employed wide differences of spring results are to be found. One car will be ideally hung, with long springs of generous width and thickness, affording perfect support to the body, yet giving the latter when loaded a delightfully easy, yielding motion; another will, for a car of the same weight, have springs of but little more than half the weight and size, with the result that the body bumps every time an unevenness in the road is encountered; while a third will be fitted with springs so heavy and stiff that the passengers will be pounded almost as badly as if the car was bereft of springs.

To almost as great an extent as body making, spring manufacturing is an art that has long received the attention of the carriage builder. He has learned to properly equip with the right kind of springs carriages and wagons, from the daintiest buggy to the most ponderous truck, and his success must be admitted without hesitation.

But the motor car builder must be prepared to outdo even the carriage maker in this direction. He must do more than provide a body to comfortably carry the weight of passengers or other load. To him falls the task of insulating the body from both engine and road shocks. Even the locomotive builder has but one-half this problem to solve, for he has a smooth, steel road, which the locomotive never leaves, so his task is much easier than that of even the carriage builder's.

The time will come when all automobile springing will be both amply strong and comfortable to the point of luxuriousness. Some of it is even now in practice. But one has only to observe the behavior of some cars on rough roads or streets to be convinced that longer, broader and thicker leaves, as well as more of them, could be frequently used to marked advantage, where the comfort of the occupants and the life of the vehicle are concerned.

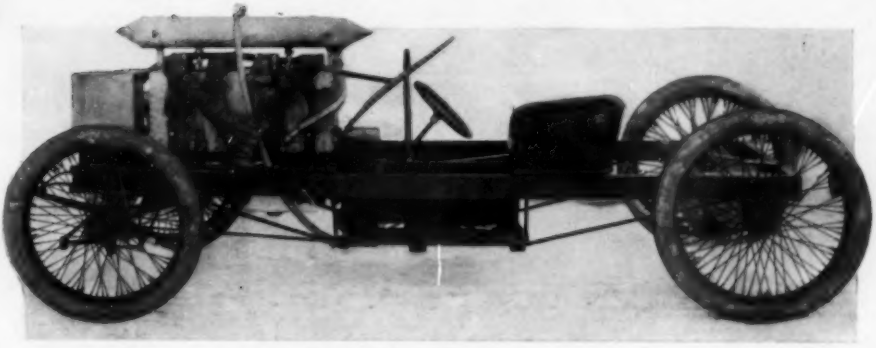
What the Cocher Has Learned

By Marius Delahaye

IT is but a very slight exaggeration to say that upon the boulevards of Paris to-day there are no passenger vehicles which are not equipped with pneumatic tires. For this universal adoption of the pneumatic tire there are two excellent reasons. First, they last longer, and, second, they are now demanded by those who ride.

It will be a bit difficult to convince some American readers that pneumatic tires outlast solid ones, but the best proof of this statement is their general adoption by cab owners.

A set of four pneumatic tires will last (with ordinary care) thirteen months for the front wheels and fifteen for rear wheels. When the tires are on cabs of a co-operative company they will last fifteen months on the front wheels and eighteen on the rear wheels. A tire may pick up a nail once in a while, but



THE FAMOUS FORD "999"
On which a mile was made in 39 2-5 seconds over the ice of Lake St. Clair, at New Baltimore, Mich., on Jan. 12

this puncture is quickly and cheaply repaired by a workman on the company's premises.

Prices of pneumatic tires in Paris have fallen to about $75 for a set of four, including four wire wheels with steel hubs turned up to fit the stub of the axle, and the whole mounted on the cab. This same outfit two years ago sold for $150. This great reduction in price has made pneumatics cheaper than solid tires. The cab owner does not feel the outlay, because it is the public that "pays the freight."

In Paris there are very few owners of a single cab; most of the vehicles are owned by men who have from twenty to one hundred cabs, which they rent by the day to responsible cochers. The average rental without rubber tires is about $2.90 per day, with the privilege of changing horses once during the day. If the cab has pneumatic tires the price is from $3.28 to $3.47 per day. Cabs with solid tires are rented to the cochers at the same rate as the steel-tired wheels.

The Parisian is now accustomed to wait until he finds a metal-wheeled cab before he gets in. Nearly all pneumatic tires for cabs are mounted on wire wheels. The Parisian is evidently of the opinion that pneumatic tires on wood wheels do not give the same comfort as on metal ones. The pneumatic-tired cab is always busy, and the Parisian is more liberal with his pour boire than he would be if he used a steel or solid-tired cab, which seemingly shakes the generosity out of him.

It is expected that there will be about seven thousand pneumatic-tired cabs in Paris by the end of this year, and if the two large cab companies adopt them a cab on the streets of Paris without pneumatic tires will become as great a curiosity as was the first cab that appeared with pneumatics, and goodness knows it created sensation enough.

This will simply be history repeating itself, for it is only a few years since great excitement was created by the appearance of the first automobile with pneumatic tires. To-day it is the automobile with solid tires that excites comment.

So it will be with the fiacre. The carriage builders and owners of private carriages are also fast adopting pneumatic tires, which are put on in a neat manner by doing away with the wooden fellies; then metal sockets are slipped over that part of the spokes that were in the felly, and the pneumatic-tire rim is screwed onto these sockets from the inside of the rim. This makes a neat job and an extremely satisfactory one at the same time.

(Begun in December Issue)

CHAPTER III.

"WHERE the divil did you get him?" asked Pat as Tim bent over me with the lantern after coming out of the pilot house.

"Out of the middle of the lake," was the answer. "This individual took a flying leap through the front window of the pilot house, knocked me clear across the room, and then wedged himself between me and the door so that I couldn't get back to the wheel. I managed to reach over and catch the cord on the engine throttle and stop the boat. Then by main strength I got the fellow out of my way, and, that he might not dive into space afterwards, I trussed him up so he couldn't make any more trouble. I think he must be a mad man coming on board the way he did." He then turned to me and asked, "Will you promise to keep from calling for help and tell me who you are?" And then added significantly, "Just remember there is a pistol with the hammer up pointed at your face, and there's a finger on the trigger." I assented by nodding my head several times, and then with seeming reluctance they removed the gag.

"Now, who are you, my boy?"

I could scarcely talk above a whisper, and he bent his head down close to my mouth in order to catch the words. When he learned who I was he straightened up like he was shot with, "Deuce, you say! Why didn't you tell me so before?" and then commenced to laugh when he remembered how well I had been gagged. Without more ado he removed the bandages from my eyes. Looking about I saw that I was in a tiny cabin with not over four feet head room and possibly between four and five feet wide and about eight feet long. I was lying on a mattress on the floor of the cabin and was too exhausted to rise when Tim removed the gag. After laughing at my predicament he gazed at me for a moment in silence and then commenced to laugh more uproariously than before.

"Well, you are the first man I ever heard of," he exclaimed as soon as he was able to stop long enough to talk; "the first man that wanted to get to work so bad that he had to dive through a plate glass window to reach his post. I never was so blamed scared in all my life as when you came sailing helter skelter into the pilot house and knocked the wind clean out of me. Where in the dickens did you come from, anyway; out of a flying machine?"

I made a sign that I wanted a drink of water and, having refreshed myself, managed to relate my experience in searching for Tim after I got his telegram. He listened to me in open-mouthed astonishment without saying a word, and then turning to Pat said:

"That is what I call a coincidence."

"Will, Mr. Tim, it may be a coincidence," replied Pat, "but shure I say it is a miracle."

Turning to me Tim looked me over and found that beyond a slight scalp wound and a pair of badly bruised shoulders I was otherwise intact and had miraculously escaped serious injury. I

was most awfully hoarse from shouting the night before, and was threatened with a severe cold from my long sojourn in the water, which made me stiff in every joint, a condition which was exaggerated by the way Tim had trussed me up. In fact, I bore the marks of the ropes on my wrists and ankles for several weeks.

Tim, with Pat's assistance, removed the ropes and dressed me up in dry clothes, which, being Tim's, did not fit any too well, as I am six inches shorter. As luck would have it, I had left a small trunk in the parcel room of the Union Depot, and by taking me home in a cab, stopping on the way to get my trunk, in the course of an hour I was reasonably presentable. After arriving at Tim's boarding house we managed to cajole the landlady into giving us a good warm meal, and thus refreshed I went to bed and slept the sleep of the blessed. It was not yet daylight when Tim woke me, but being accustomed to the strenuous life, I had managed to get in a good deal of rest in the three hours' time.

"Come, Ned," Tim said. "We have got to get down and on board before daylight, or else all the rubbernecks in Cleveland will be on the dock looking us over, and I have special reasons for letting no one see the Esmeralda for several days."

A carriage was in waiting, and we soon arrived at the lake and some two blocks away from the place where the Esmeralda was moored. Pat had already put a new glass in the front of the pilot house and everything was in readiness. I had scarcely a chance to glance at the exterior, which I have already described in the preceding chapter, when, lifting the hatch on top of the pilot house, Tim signaled to me to enter. Pat shook hands with us heartily and assisted in closing the hatch, afterward casting us loose from the dock. There was just room for me in the back of the pilot house, and I sat on a low seat, saying nothing, while Tim started the engine and slowly turned out into the open water.

He was silent for about half an hour, and I took advantage of the opportunity to look about and watch the various operations. In the first place, he started the engine by pressing a button in a switchboard in front of him. The little buzz that followed this operation was easily recognized as the hum of a spark coil vibrator and the form of ignition was apparent. What surprised me most, however, was that the pilot wheel ordinarily used in a boat was absent. Instead there was a small handle some five inches long which, by throwing it from one side to the other, steered the boat apparently without much effort on the part of the operator. A small mirror at his left, I could see by looking over his shoulder, gave him a view of the engine room, which was aft the pilot house and between it and the cabin in which I had spent my period of bondage. One glance into the mirror, however, gave me a view of a blurred mass, which I discovered afterward to be the engine. A row of tanks, valves and gauges on either side of the engine showed the mechanism for raising and lowering the boat, but were, at that time, all Greek to me. The entire absence of any symbols and labels on the various buttons or levers in the pilot house showed that the boat was not intended to be run by an amateur. I waited patiently for Tim to speak. When we were perhaps some ten miles out in the lake, he asked me to stand beside him so he could explain the different levers.

"What I wanted you for was to learn how to run this boat in case, for any reason, I should get laid up. I don't believe it is wise for a man to run the risk of being alone with a plaything of this

kind. The reason I wanted you so badly was I knew from past experience I could trust you not to give me away. The whole scheme is to get as light a rig as possible for the power, as this boat is designed primarily for racing purposes. To all intents and purposes it is a submarine. That feature, however, is devised only for springing a surprise when I get into a race, as you will discover later.

"You see that I steer with this short handle, which operates the rudder by means of compressed air, or rather it works with gas pressure, as you will see later. Now, if you will notice, every operation, with the exception of steering and the engine speed, is controlled by electricity operating indirectly. By pressing this button I can fill the ballast compartments with water and run partly or fully submerged, as I wish. By looking in the mirror you will see that along each side of the boat is a steel tank which I can fill or empty at will. In order to save the weight of pumps I do away with them entirely by the use of calcium carbide. When I want to empty the reservoir partly or fully an amount of carbide previously determined is admitted, generating gas which drives out the water." We were now running under water, and I was much puzzled to know his method of guiding the boat, and said as much. To this query he replied:

"You will find by this mirror that I have a telescopic tube which reaches above the water and shows me everything around. In order to avoid running into obstructions beneath the water, I have a boom stretching out in front, which is very sensitive and gives an alarm so soon as it comes in contact with an obstruction. This boom is telescopic, and not only gives the alarm so soon as it strikes anything, but immediately reverses the propeller and throws out braking flanges on either side. Thus, before the boat comes in contact with the obstruction, it has been stopped and is backing off, which gives a man time to think and shut off the power before any damage is done. I make a point of not running faster than twelve miles an hour when fully submerged, and therefore have no trouble in bringing the boat to a standstill within the sixty feet which the boom sticks out in front. I can also see about the same distance ahead by means of a powerful acetylene search light which I carry just at the top of the pilot house window."

Just at this moment we came in sight of what appeared to be a great black rock, and I braced myself for a shock from the boom which reversed the boat, but nothing of the kind occurred, and we appeared to pass in through the face of the rock, entering, as it was afterward proved, a large cavern. We had passed in about one hundred yards when Tim stopped the engine and, throwing a charge of carbide into the ballast tanks, brought the boat to the surface. We slid gracefully along the side of a stone ledge which was almost level with the surface of the water, and throwing back the hatch Tim jumped out and soon had the boat fast.

"This is our hiding place, and now I shall be able to show you around," he said.

Pressing a button on the wall of the cavern, he lighted a row of electrics and the cavern was as bright as day.

"Come, now; I want you to look her over with me," he said. He laid open the engine room hatch so we could get at it better, and throwing back another section of the top, I beheld something in the design of an engine I had never noted in practice. It was a twelve cylinder engine arranged in three sets with the cylinders radial and revolving about a stationary crankpin, the four cylinders in each set of engines being at 90°, the weight of the

revolving cylinders serving as flywheels. No vaporizer of the ordinary type was in evidence, but instead all twelve cylinders were supplied with fuel and air from an instrument which Tim called a gasifier. The gasifier consisted of a rotary pump which drove the air into the inlets through a small reservoir of gasolene kept in constant agitation by a paddle. This, he told me, was one of the most difficult problems of the whole device.

"This engine, you will see, is a four-cycle, with the valves in the heads of the cylinders. I knew but little about the two-cycle when I started to build this rig, or probably I would have undertaken that type. If you will note carefully you will see that there are very light springs on the valves. These are merely to keep them from falling off their seats when the cylinder is in a vertical position with head up. The centrifugal force is quite sufficient to keep them in place when the engine is running. I have found it best to keep my crankshaft horizontal, and you will see that back of the clutch and the reversing gear I use a pair of universal joints on the propeller shaft. This is the reason for the sloping floor on the front of the cabin. The engine, as you will note, is as near amidship as I can get it and proportionately near the center of gravity to keep the boat on even keel without unnecessary ballast.

"How much power do you get from the engine?" I inquired.

"At the ordinary rated speed of 1,000 r. p. m. I got 65 B. H. P., but by crowding my gasifier I can use double this speed and get 100 H. P. at 1,500 r. p. m. Now this is a little trick of mine which I don't want you to give away. I want to get the engine rated at 65 H. P., and there is no one knows how I accelerate it."

"I really think it would puzzle me," I replied, "as I don't see how you can increase the speed of your engine that much without changing your screw."

"As for that," remarked Tim, "there is a little bit of a trick about the screw. It has a slightly variable pitch, which alters automatically as the engine speeds up. This is something I don't care to give away just at present, but I may tell you about it later. I have also two or three other things up my sleeve. For instance, I can increase the mean pressure on the piston by the use of acetylene and can use various combinations of different compounds in the gasolene when racing. Pat will be here with our breakfast before very long, and I want you to spend the day with me in studying her mechanism so that to-night we can go out on the lake and I can teach you how to run it. It is only three days until the race off Put-in-Bay, and I want to give those fellows a surprise party."

He had hardly finished speaking when Pat appeared upon the scene from the back of the cavern with a basket full of eatables, and after attending to the wants of the inner man we went aboard once more, while I went over carefully the various levers, a study in which I spent the remainder of the day. That night about nine o'clock we plunged beneath the water and out into the lake, while under Tim's guidance I watched carefully the management of the boat, which, to tell the truth, was very simple and not hard to acquire. The night before the race we started west, following the route of the steamers running from Cleveland to Put-in-Bay, disappearing beneath the surface whenever we came in sight of other craft, some of which passed directly over us. Passing to the south of Kelly's island, we steered carefully for Scott's point; then, veering slightly to the north, rounded Mouse Island, which is quite rocky, and maneuvered around for some time looking for shelter, thinking we might possibly find a cave such as we employed

near Cleveland. Pat Moran, Tim's henchman, declared he had discovered such a place many years before while swimming near the point, but could not tell us exactly where. Daylight was approaching and it seemed as if we must surely be discovered.

While creeping along near the bottom we saw a narrow opening in the rocks and dived into it, going slowly. We had entered probably half the length of the Esmeralda when she became wedged fast and could neither go forward nor back. This was a pretty state of affairs, and both Tim and I turned pale. The hull of the Esmeralda was hardly thick enough to stand a great deal of scratching against the rocks, and in case she sprung a leak it would, very likely, be all over with us in a short time. When the sun came out, it lighted up the waters all about us. Fortunately there were two small port holes in the bottom on either side of the cabin covered with heavy glass bull's-eyes, and through these we observed that we were hung some ten feet from the bottom of the lake. As the water became lighted up more distinctly we could see that beneath us the walls widened and there was ample room there for the passage of the boat. I called Tim's attention to our position, which was now getting serious, as our small supply of oxygen was limited and we had neglected to fill our compressed air tanks to their fullest capacity.

As soon as Tim saw our position he determined to fill the ballast tanks with water suddenly, and possibly by this means give us an impetus toward the bottom. Ten times we tried this, but still we were fast. Then an idea struck Tim. We had on board probably about 100 pounds more carbide than we would need. This was in a finely divided state in order that it could be quickly acted upon for the ballast tanks, and we decided to try its effect upon the water below, which we were fortunately able to do owing to an air lock Tim had provided in the bottom in case he wished to pass out in a diver's suit. We carefully lowered the can so it could be opened readily and empty its contents without delay. This we had to do most carefully in order to avoid the escaping of the noxious gas into the already nearly vitiated air inside the boat. In spite of our care a certain amount escaped and nearly choked us.

As an after thought, Tim decided to raise the top of the cap and empty it into the air lock. This we finally managed to do and fastened the inner door, then filled the ballast tanks with water and suddenly opened the lower door of the lock, precipitating the entire 100 pounds of carbide at once into the water below. The effect was almost in the nature of an explosion, which lifted us slightly, but, as the water left, the Esmeralda wavered for an instant and then plunged almost to the bottom of the opening, the fall being cushioned by about three feet of water. The gas escaped almost instantly from around us and Tim reversed the engine full speed, pulling clear of the opening.

"Why don't you go on in, now you have the chance?" I asked.

"I want to get some fresh air," he replied. "That cavern will be full of acetylene gas. We will have to run around beneath the surface for a time, trying our best to keep out of sight until it is safe to enter, for I doubt not that the cavern has crevices from which the gas can escape, and besides the water will absorb a considerable quantity."

We managed to get near enough to the surface to get a supply of fresh air which was drawn in by a fan. It was eight o'clock before we decided to return to the cavern. Suddenly Tim exclaimed:

"Great Lord, Ned! We've got to get a move on!"

"What's the matter?"

(To be Continued.)

Gasolene Engines for Marine Propulsion

By D. H. Cox

Member Society of Naval Architects and Marine Engineers*

Concluded from January Issue

SEVERAL very simple and effective feathering wheels are on the market and give excellent results, the pitch of the blades being altered at will from a maximum go-ahead pitch, through zero, to a maximum backing pitch with the same direction of rotation of the shaft. The shafting in such cases is hollow, and a rod within it controls levers on the hub which revolve the individual blades on their axes. The fact that the engine must be run continuously during the changing from going ahead to reversal makes it evident that a method of governing should be provided to prevent racing during the change in load. This continuous running of the engine during short stops, when making landings, going alongside other boats, and, in general, when quick and positive starting is required, is, as a rule, quite objectionable, owing to the noise and vibration usually caused under these conditions.

The speed of the engine is altered by changing the timing of the spark as already stated, and also by throttling the gas supply. In all good designs both means of speed control are provided, and the throttle in addition is actuated automatically by a governor driven off the engine to prevent racing under release from load when stopping or running in a sea-

way. By a combination of these methods and by the use of warm air, a large range of speeds and a considerable variation in the consumption of gasolene per horse-power hour is possible. Under the best ordinary conditions, when the gasolene vapor is in the proper proportion, the consumption does not vary greatly from one pint per horse-power hour, and this is the figure generally used in calculating tank capacities.

The heat produced by the high tem-

* Excerpt from a paper read by Mr. Cox before the eleventh general meeting of the Society of Naval Architects and Marine Engineers.

perature of the products of combustion is drawn off by circulating water from the sea driven by a pump from the engine, the cylinders being well jacketed for this purpose. In some cases after passing through the jackets this water is discharged directly overboard, and in others it enters the exhaust pipes and passes out with the consumed gases. The latter method is preferable, lowering as it does the temperature of the exhaust line and reducing the back pressure, and having also the effect of securing a less noisy exhaust. Some form of muffler tank or expansion chamber is generally fitted in the exhaust line to deaden the sound of exhaust; diaphragms of different designs are sometimes introduced in these tanks to assist in the muffling process, but they have the effect also of raising the back pressure. Discharging the gases below the water line, a device sometimes adopted for deadening the noise, and keeping the discharge where it will not be noticed, also increases the back pressure as do the numerous unnecessary bends in the exhaust line that may often be found when the installation has been carelessly made.

The most interesting phase, perhaps, up to the present of gasolene engine use has been in the various types of racing launches, and a description of a few of these will not be out of place. Mr. H. T. Leighton, the manufacturer and designer of the 120 H. P. two cycle engine, has turned out a great number of very fast boats. The Adios, in which the engine just mentioned is installed, is his highest powered boat, and is credited with a speed of over 24 miles an hour. An official test over measured mile give her 23 miles and a fraction, and since then her performance has been improved. Her particulars are:

Length over all	55 feet 0 inches.
Length L. W. L.	55 feet 0 inches.
Beam at L. W. L.	6 feet 6 inches.
I. H. P.	120.

The engine makes 475 R. P. M., and the wheel is 3-bladed, with 32-inch diameter and 72-inch pitch. From this it will be seen that her performance is excellent. Photographs of the wave formation from a broadside and a stern view, taken at about 23 miles, show remarkably little disturbance of any kind, and prove that the design is a good one for the given conditions. Two other Leighton boats giving good results are:

ZAZA:—	Length	35 feet 0 inches.
	Beam	5 feet 4 inches.
	Speed	18 miles.
	I. H. P.	25
PINK:—	Length	22 feet 0 inches.
	Beam	4 feet 0 inches.
	Speed	14.8 miles.
	I. H. P.	7

The most conspicuous power boat in the neighborhood of New York harbor at the present is the Standard, in which is installed an engine of the same name. Her speed is somewhat problematical, her builders not having been satisfied with the wheels used this season and not having wished, therefore, to run her over an official course. Judging from what has been seen of her performance it is safe to say that she can run along very handily at 20 miles and probably will reach 22 with a proper wheel. Her particulars are:

Length on water-line	58 feet 0 inches.
Beam extreme	7 feet 6 inches.
I. H. P.	110
R. P. M. about	400

The general form of this launch is not unlike that used by Normand in his high-speed work, and undoubtedly is well adapted to the purpose, as it drives well both in smooth and rough water. The contour below the water-line is nearly straight from the greatest depth at the forefoot to the bottom of the transom aft, the necessary lateral plane for steady steering being secured by a false deadwood. The stern is chopped off straight up and down, the transom being wedge-shaped, which seems to have the effect of making a vessel leave the water more cleanly than the square-across tran-

som, and is also better for backing. All the sections, except those well forward, where considerable flare is given to make her dry, are quite round, and the center of gravity of the load-water plane is well aft of the center of length. Her design is not in any sense extreme, and her lines could be used to advantage in larger vessels.

On a recent run to Nyack and back from the Columbia Yacht Club in half a gale of wind, the water being very rough, particularly in the shallows near Nyack, the trip up and back, about 40 miles, was covered by the Standard at an average rate of about 19 miles per hour; this with the engines somewhat throttled down. Under these trying conditions she behaved remarkably well. The engine required no attention whatever from start to finish, notwithstanding the heavy strain imposed upon it by driving through the seas, and the constantly varying load as the seas passed under her counter. The hull proved exceptionally dry under the circumstances, and there was no difficulty in steering, even with a quartering sea. No evidences of distortion of the hull while driving hard in a seaway have been noticed, although the construction is exceedingly light, as will be seen from the detailed description that follows.

There are three small cockpits about four feet wide, being used for steering, engine space, and passengers, respectively, commencing forward. One gasolene tank is carried forward in the peak compartment and another aft of the engine compartment. The method of construction is novel. The planking is of $\frac{3}{16}$ inch mahogany, worked in one thickness in planks about eleven inches wide, flush. The seams of these planks are centered on fore-and-aft strips about 2 inches by 1 inch, each plank edge being secured to these strips by brass wood screws, let in flush and closely spaced. The timbers are spaced 8-inch centers except toward the ends where the spacing is more open. They each consist of two narrow steamed oak strips about $\frac{3}{4}$ inch by $\frac{1}{4}$ inch, one on each side of the longitudinal strips, being let into and secured to these strips. Rigidity is given to the hull in a fore-and-aft direction by a truss running along each side of the line of the cockpit combings. The upper and lower members of these trusses are of wood of substantial dimensions, and the compression members are of gas pipe, the cross bracing being made of several strands of steel wire, twisted to produce the required tension by means of a metal rod lashed to prevent the twist coming out, and allowing adjustment if required. As stated, the hull is sufficiently rigid to withstand the strains produced without undue distortion, but the extreme thinness of wood between oneself and the water, when driving at high speeds, is an unpleasant subject of thought, when the effect of running into any floating spar or wreckage is considered. About the only trouble experienced with this hull has been the tendency of the planks to buckle, as there is no way of taking up the expansion, the seams being a neat fit. As the plank is screwed on it can be removed when required and the seams and edges eased off.

The success of the flat-sterned launches with the center of gravity of the load water plane well aft has led to many peculiar developments in the way of freak designs, with some of which remarkable results have been obtained.

The Dolphin, a small launch recently contstructed, is a good example of the extreme development in this direction.

The particulars of this launch are:

Length over all	25 feet 0 inches.
Greatest beam	4 feet 0 inches.
Power	7 H. P.
R. P. M.	720
Speed	12 miles.

The engine is a two-cycle single cylinder, 5 inches by 5 inches. The contour of hull in the fore-and-aft plane below water

is straight from the lowest point at the forefoot to the bottom of the transom aft, and the load water plane is nearly triangular, the bow being the apex and the stern the base. The sections are also triangular below the water line. The entire absence of broken water shown by this hull, either in the wake or alongside, when driven at the high speed, for its length, of 12 miles, is most remarkable, and the speed reached with the given power is also worthy of attention. It is stated that an extreme design not unlike this launch has been tried in some German torpedo vessels, and excellent speed results obtained, although as sea boats the type proved a failure.

The Express, another fast launch, is an approximation toward the extreme type as shown in the Dolphin, but the designer, not wishing a freak but a boat that would have great speed and be comfortable in Long Island Sound in any weather, modified his lines to a considerable extent and produced a not abnormal looking hull above the water line at least, and a good handy boat for the conditions desired. Her particulars are:

Length over all	27 feet 0 inches.
Beam extreme	4 feet 0 inches.
Power, rated	9 H. P.
Speed	12 knots.

The motor is a four-cylinder, four-cycle machine, and is said to develop about 10 H. P. Photographs show the small wave disturbance caused by this hull also and her satisfactory absence of squat. It is noticed, however, that there is considerably more broken water alongside than in the case of the more extreme Dolphin.

There are other launches built or building of extreme type that would make interesting subjects of study if their lines were available, but information of this sort is hard to obtain. The general trend of the speed launch design is to make the squat as little as possible by the full water lines aft, and then to secure a proper entrance at the plane of flotation when under way instead of at rest in the water, much in the same manner as designers now give the inclined water lines of sailing vessels careful consideration, a fact that at one time was altogether neglected. That success has been met with is readily seen from photographs since the effect so often seen in short launches driven at high speeds of the forefoot completely out of water and a smother of foam under the bow is conspicuously absent. Unfortunately, in many instances, the actual power developed by a gasolene engine of given size and rating is quite problematical, and hence it is hard to arrive at any accurate conclusion regarding the performance of a particular launch, and from it to draw conclusions regarding the probable effect of enlarging one of these models to a size suitable for, say, torpedo-boat work. It would seem, however, that experiments at the model basin with designs on some of the extreme types mentioned might lead to some interesting information for a class of extremely high speed torpedo vessels for harbor work only, as they certainly would not prove a success in a seaway.

The outlook for the continued increase in the use of the gasolene engine for marine work is, in my opinion, most promising, and more particularly in engines of considerable size. Up to the present, the lack of confidence in engines of this type has, for the most part, limited their use either to small launches or to vessels in which the power required was not great, and the installation of more than 100 H. P. in one hull has been quite an unusual event. With the confidence gained from experience with the improved marine engine, owners are now prepared to invest more money, feeling that they run but little risk of disappointment, and next season will see quite

a fleet of power boats, from the hands of various designers, that will present many novel features, and with their high power and great accommodations will be popular additions to the yachting fleet.

As an illustration of the saving in room effected it may be stated that in a 75-foot steam launch of recent design, with water-tube boiler and four cylinder triple expansion engine of 175 H. P., the total length of boat given up to engine and boiler room was 18 feet, the whole width of the boat as well over this length being taken up to provide for bunker space and auxiliaries. A 175 H. P. gasolene engine would require only an engine room of 12 feet by 5 feet, saving 6 feet in length, and leaving considerable space available on each side of the engine room hatch. Owing to the absence of auxiliaries, two engines of this size, or 350 H. P., could be installed in this launch in the same 12 feet of engine room. From the weight point of view, one 175 H. P. gasolene engine would weigh about the same as the steam engine, thus saving the weight of boiler, piping, auxiliaries and feed water, as the coal may be offset by the oil carried, the total saving about 15,000 pounds, or 30 per cent. of the total displacement. Even with 350 H. P., there would still be a saving of about 10,000 pounds over the weight of the 175 H. P. steam engine.

A Life on the Ocean Wave

A little launch went out on the boundless swell,
As tho' her passengers were bound for Yurrup;
But they hadn't gone far when they set up a yell:
"Oh, Steward, dear Steward, bring something to quell
This riot which in us doth stirrup!
Bring a hunk of salt pork on a string, if you please.
They say for seasickness it is just the cheese;
Or some soda and brandy, if you have the stuff handy,
Or any old thing that will cheer up!"
Now, much mal de mer the Steward had seen,
So he brought them a bucket all painted pea green,
And the last that was heard of the launchers brave
They were hoping to die 'neath the truculent wave.

WHERE THE WAKES OF THE NEVERQUIT YACHT CLUB AND THE SALESLADIES' COTERIE CROSSED.

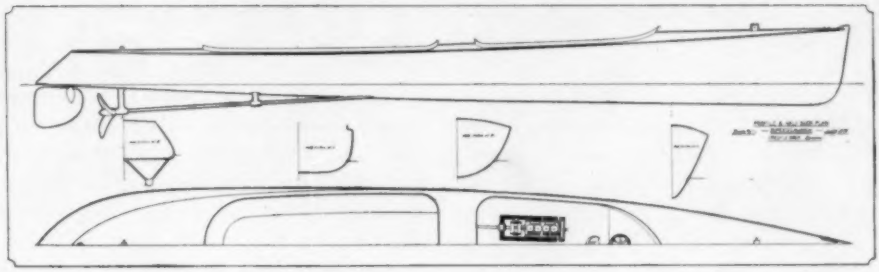
High Speed Power Boats

By Frederic S. Nock

WITHIN the last two years the demand for high speed power boats has been steadily on the increase, this being most noticeable among the boats of from twenty-five to sixty feet in length, the latest development of this type being the "Auto Boats" or "Automobile Launches."

This type of craft has been greatly assisted in reaching its present state of perfection through the development of the hydro carbon motor for automobile purposes. A great many of the principal attributes necessary for the proper use of motors on carriages being some of the best factors for marine work. The principal one being the small amount of weight per horse power, for it is now possible to install in a small boat a plant of such high power as was never dreamed of formerly when steam was used; the great weight of the boiler and fittings made it prohibitive. As an instance I would state that at the present time there are built, and in the course of construction, launches of thirty to thirty-five feet in length equipped with motors capable of developing from fifty to over one hundred horse-power. The speed that some of these craft will develop is somewhat of a problem. There is, however, little doubt but that the season of nineteen hundred and four will see some fine records made; it is not presuming too much to state that we shall see some small boats making from twenty to twenty-seven miles per hour.

To the uninitiated it seems that they have only to put in their boats a motor of higher power in order to convert same into a speed launch. In a very few instances this might prove correct, but in the majority of cases the difference in the speed if the amount of horse power were doubled would be so small that it would scarcely be worth the expense incurred. If their boats were originally designed and built for speed and the power plant that was installed proved inadequate and did not develop the amount of power that it was supposed to, and was then replaced by a motor of practically the same weight, but developing more power or coming up to the standard for which the boat was designed, there would be a marked increase in speed, but there are a number of boats which could not be driven much faster than they travel at the present time even though the power was doubled. The fault does not always lie with the lines of the boat, for the diameter



and pitch of the propeller cut quite a figure where speed is concerned, and a propeller should be designed to meet the requirements of the power and speed of the motor compared to the desired speed of the boat.

In a great many cases persons ordering a "speed" launch have very little idea of the many obstacles the designer has to overcome, and instead of stating that they want a speed launch of such and such a length, to have a speed of so many miles per hour and giving him a free hand, they state that they want her "so many feet wide," "she must have a keel to extend below the propeller to protect it from striking when boat gets aground," "the motor must be placed as far aft as possible (out of the way)," "plenty of freeboard," "a nice looking overhanging stern," and numerous other things. This is all right if they don't want a racing machine, and would be perfectly satisfied to accept such a boat irrespective of speed, as these things are not conducive to speed.

Presuming that the form of the hull is fine, it is necessary to construct the boat as lightly as possible and at the same time reserve enough strength to stand the stress and strain to which it will be subjected. The freeboard should be low in order to present as little surface to the wind as possible; in fact, any unnecessary thing which would tend to increase the weight of the boat should be discarded, as it is absolutely necessary to have the displacement as small as possible.

The construction of launches for speed entails considerable more expense than the building of the standard type of launches, the planking usually being of two thicknesses of wood, thus insuring an increase of strength and a saving in weight, as the planking can then be made thinner than if it was only of single thickness. The frames should also be made very light and spaced closely; decking should be of double thickness; in fact, anything that would tend to reduce the weight and yet have sufficient strength has to be taken into consideration.

The cost of a fast launch depends to a great extent upon the amount of speed desired and the size of the craft, varying in price from about nine hundred to fifteen thousand dollars. For every size there has to be made a new set of drawings, and usually a launch that is designed for a certain size and type of motor would not develop as much speed with a different motor unless the weight, number of revolutions and horse power were about equal.

The motor of four cylinders seems to be the best adapted for marine work, and some of those which are installed in these light craft are automobile engines pure and simple, although in most instances iron crank cases take the place of the aluminum crank cases, the cylinders being supported upon round steel

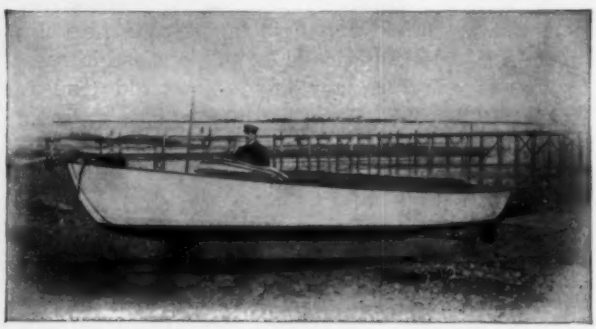
rods, and aluminum doors admit of access to the cranks, etc.

The machinery and boat are under the entire control of the operator similar to an automobile, an upright steering wheel controls the rudder, and levers placed within easy reach advance or retard the spark, control the supply of mixture, etc.

Perhaps it would be as well to remark that it takes considerable time to get up a new set of plans and build one of these craft, and orders for same should be placed with the builders in the fall and winter, for in the spring there is always a rush to get the yachts in commission that have been laid up for the season. The early placing of orders in most cases insures better work, as there is then no need to rush the work, as would usually happen if the order were placed in March to be delivered May the first.

Speed and Comfort Combined

THE boat shown herewith was designed and built by Mr. F. A. La Roche, and embodies many new and novel features. The hull was designed by Mr. Charles F. Herreshoff, and the engine and machinery were designed and built by Mr. La Roche. The boat has a length over all of thirty-two feet, has an eight-foot boom, draws eighteen inches of water, and follows the lines of a torpedo boat with very sharp lines forward so as to divide the water evenly without splashing. The boat is very roomy inside, being designed for Mr. La Roche's own use and comfort. The engine is well set forward, about ten feet from the bow, with lockers on both sides, which act as seats, while in them the batteries and induction coil are located. Aft of the engine is a space the full width of the boat and about twelve feet long, in which are reclining chairs, making this craft one of the most comfortable and luxurious of its kind afloat. The engine has four cylinders, four cycles; in fact, it is identically the same as used in four-cylinder automobiles, the control, the steering device with change gears and reverse gear for different speeds, all being precisely as they are in an automobile. The propeller is eleven inches in diameter and revolves 1,600 revolutions per minute. Mr. Roche expects this boat will make sixteen miles an hour.



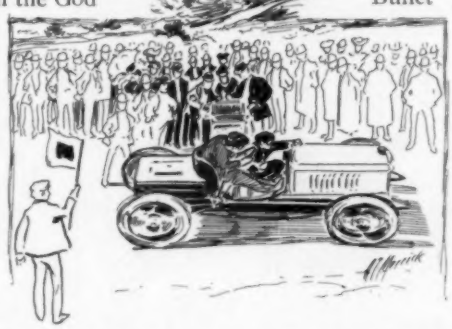
"Yes, he achieved success so suddenly that we're in trouble. You see, he's a distinguished lawyer, and he's been put on the Governor's staff and made honorary head of a yacht club. No one knows whether to call him judge, general or commodore."

A colored brother sums up the whole matter as follows:

'Twixt de devil en de deep sea—
Dat whar de sinner stick,
En he mighty 'fraid er fire,
En he des can't swim a lick!

MAINLY ABOUT MEN AND MOTORS

THE wind and water swept Ormond-Daytona beach will before this magazine appears again have witnessed a wonderful and, for that part of the country, a strange sight. Who would have thought two years ago that the great automobile drivers of the world would be battling for supremacy in 1904 in the broad expanse of beach on the Florida east coast? Father Neptune will get up from his noon-day nap to see fearless young men rushing through space faster than even the God of Storm can travel. From the moment that the Creator said, "Let there be light," and that light came rushing through space even faster than Barney's "Bullet" or Vanderbilt's "Mercedes," no seacoast has before beheld such a magnificent, such a terrific spectacle as will be presented on the Ormond-Daytona beach, January 27th, 28th, 29th and 30th. The eyes of the automobile world will be focused on the sunny State of Florida, when to the muffled music of Old Ocean races will be won and records smashed to small pieces.



The fast-flying gasolene motor machine will vie with the steam chariot and the electric speedster, and the trade and the sport will receive an impetus that will carry it into the buying automobile year of 1904 with such a rush and infection that it will be worth hundreds of thousands of dollars to the manufacturers and to the agents throughout the country, and, let us hope, to American manufacturing prestige in general. It is true we will have to pin our faith largely to Barney Oldfield and the Cleveland-made machine. The machine that went to Europe, whose owner could not say with the Roman general, "I came, I saw, I conquered," since it left a trail of disgrace and defeat behind it. Thus it is to be hoped and sincerely wished for that Oldfield will wipe out that disgrace forever and for aye on the beautiful Florida coast. It would seem that the "Bullet 3d" was built for pot-hunting purposes; or why was it made with eight cylinders and an employe of the company that built it given a machine with four cylinders only? I do not know . that there can be a limit put on the number of cylinders used, but it seems to me it is like allowing a 5 or 10 horse-power motor cycle to compete with a 1¼ horse power, and I imagine there will be some work very shortly for a classification committee on that point. There is only one other eight-cylinder machine in this country or, I believe, in the world, and that was built last summer by a man named Buffum, of Abington, Mass., but who has not, I am told, given it a trial as yet, but may do so during the summer. It will be a good thing to get up a match between the two 8-cylinders and classify 8-cylinders by themselves, as it seems hardly fair to allow a machine of that power to compete with a small 30 to 40 H. P. machine on even terms.

But to return to Florida. It may be well for me here to say a word as to how the Florida tournament proposition started, so that the historian of the future will have it straight and correct for the automobilists 100 or 1,000 years hence.

While editor of the American Wheelman some nine years ago I endeavored to get up a race meet on the Ormond-Daytona beach, or rather Ormond beach, and had some correspondence with Captain O'Donnell, of Jacksonville, in regard to the matter. Through some reason or other the meet did not eventuate, but the idea did not die.

While riding with Elwood Haynes in the Endurance Run to Boston a year ago last October he told me about the experience of one of his men, Charles Birchwood, who had been to Florida and had used two Haynes-Apperson cars successfully in a livery way on the Ormond-Daytona beach. That immediately fired my interest anew in the Florida beach, whereupon I wrote Mr. Birchwood for particulars, and the editor of the AUTOMOBILE MAGAZINE fixed up an article, which further added fuel to the fire of my desire to see some automobiles racing on that beach.

The editor, however, made trouble for himself, as racing in Florida became my topic and I wanted to go down there post haste. The editor rather ridiculed the idea, and that made it worse, so our president, Angus Sinclair, seeing that I was like the boy of soap fame who would not be happy until he got it, told me one morning: "You had better go to Florida and look at that beach, and as I am going to California meet me at Chicago at the show and tell me what you think about it." When I told a railroad man that I was going to Florida and what my game was, he declared I should first visit a factory where mental outfits are reburnished and their differential gears are put in shape; but I went all the same.

On my way I stopped over in Jacksonville and sounded the few local automobilists as to whether an organization could be formed in Florida for the purpose of giving a meet annually under its auspices. Meeting with some little encouragement, I went on to Ormond, and there I met those two splendid gentlemen, John Anderson and Joseph D. Price, who went to Ormond when it was a wilderness, and worked in overalls with the axe, the shovel and the pick until eventually they created a place that can't be much inferior to the far-famed Garden of Eden. The fruit trees are there, too, and I know of one about the center of a grove that is "all to the good," and I will promise my very intimate friends to steer them right to that tree, as I have a wager with "Bill," the man who makes the groves blossom, that I can find that tree when I want to.

I had previously written to John Anderson asking what he thought about it and the scheme of automobile racing, and he had consulted a very cautious and helpful sort of man, one J. F. Hathaway, who owns a big factory in West Somerville, Mass., whose hard work in the past now enables him to travel with the swallows and take life easy. Mr. Hathaway was inclined to believe that there was some deep scheme in it or we would never offer to get up a tournament so far away from our base or home plate. Mr. Anderson also comes from New England, so he wrote to the AUTOMOBILE MAGAZINE to ask did they know one Morgan, and if he was up to snuff and could be depended upon. The reply was that they thought he would do in a pinch, and so when I landed on the Ormond Hotel veranda two pairs of hands were outstretched and they belonged to Anderson and Price.

They telephoned for Mr. Hathaway, who was at Daytona, and he came down and looked me over and took me for a

drive on the beach, and had me "in the air," so to speak, before he landed me back at the hotel, for Hathaway is an enthusiast of no mean order, and his one object in life has been for three years that the Ormond-Daytona beach for automobiling is the greatest thing that ever happened. If you can ever get this man Hathaway in a corner, get him to tell you about the conversion to automobiling of S. H. Hardwicke, general passenger agent of the Southern Railway, as I assure you it is worth going a thousand miles to hear, and I am sure he made a great friend to the cause when he demonstrated to Mr. Harkwicke that an automobile is not only safer, but sometimes faster, than trains on a Southern railway.

On my return to Jacksonville I saw it was up to me to organize an association, so this was done, and it was called the Florida Automobile Association. On the night of its institution in the Board of Trade rooms, Jacksonville, I was handed a telegram as follows:

"W. J. Morgan, Jacksonville.

"The Daytona and Seabreeze Automobile Association wishes the Florida Automobile Association much success and will donate prizes for the coming tournament. (Signed) The Daytona and Seabreeze Automobile Association."

Mr. Hathaway confessed to me afterwards that the above association was largely a creature of his mind, but he thought it would do to jolly me up and keep my spark of interest well advanced. This was the first time I had ever heard of such an association, but with the Hathaway hustle it was made a fact later, and if it had not been for the good and loyal men of that association I would have had a hard time with my first association meet, as the Florida Automobile Association proved a broken wheel and flew the track about two weeks before the race meet came off, which was scheduled for March 26, 27 and 28, 1903. Through some misunderstanding with a railroad manager at Jacksonville, they became possessed of the idea that the railroads had engaged me to promote the event, and thereupon they sent telegrams over the country stating that they—the association that I had hurriedly created—would not be connected with the coming tournament, as it was an advertising scheme, which goes to prove that they had gone back on their creator in their very early youth.

While rushing to Florida to try and prevent a complete wreck, I called a meeting by wire and told them that I would stand by them and they must stand by me, as there was no truth in the allegation, and they had already been convinced of that fact by Daytona and Ormond people, who knew the real facts in the case, and who had visited Jacksonville and insisted that the Florida Automobile Association wire me to that effect, which they did, but it was too late to undo the damage already done. Some twenty members attended the meeting and assured me that everything was O. K. and that they had made a mistake, and they all promised to do what they could to come to the meet and bring their machines with them. The association was represented at the meet by only one man, the secretary, and he put in a bill for his expenses, the local automobile agent not even showing up; but the Daytona people, headed by Hathaway, were on deck when I arrived at Ormond, and we soon had the tournament bee buzzing and got it flying straight. Committees were hastily formed and the result is now well known. The men who gave the initial tournament support and direction were J. P. Beckwith, F.E.C.R.R. (which, of course, means General Manager Parrott also), J. F. Hathaway, Dr. H. H. Seelye, John B. Parkinson, John Anderson, J. D. Price,

R. E. Olds, Frank X. Mudd (of the Chicago Automobile Club), S. H. Gove, W. H. Peters, the latter a warm one, and, as the boys say, "all to the mustard." Here I would pay special tribute to R. E. Olds, who brought the Oldsmobile racer there without any stipulation or tying of my hands. Mr. Winton also deserves credit for sacrificing his time at the factory. The Automobile Club of America sent Captain Opdyke to superintend the timing. This about completes the history of the first tournament, its promotors and its promotion.

I like nerve. I have some myself, and so naturally I could not consistently begrudge the other fellow having his share of it, but I'll be doggoned if the latest example of the Cleveland brand don't put me over the fence. By what right but that of supreme gall has any American maker to assume a crown, call himself a king and have a shoemaker produce what I suppose he and his employers think is a coat-of-arms, but which is in fact only a bungle of buncombe, bad taste and brass? If I had gained the same unenviable experience on kingly soil that this Cleveland self-crowned king has, I'll be blessed if I wouldn't sue any one who attempted to advertise the fact. Perhaps there may lurk in Cleveland an idea that as "the king can do no wrong," so if this self-crowning stunt goes that the Cleveland king will through his royalty be protected from going wrong. If there is any hope that this will be accomplished, then I can readily understand why any effort, even one so foolish as this should be made. Desperate diseases require desperate remedies.

I stood at the corner of 15th street and Broadway on a recent evening waiting for a car down Broadway. In front of me there drew up one of the very latest things in the line of motor delivery wagons. Inside of the jewelry store, in front of which I stood to which the delivery wagon belonged, the clerks were closing up. Very soon one of them came out armed with a screwdriver and began removing from the sides of the wagon two large silver plates bearing the firm's name. The plates were the only adornment other than a very high polish on the rig.

"That's funny," I said as I watched the clerk's operation.

"Funny, eh?" said the clerk. "Well, those plates are worth $200, and you don't suppose we're taking any chances with them in a big livery stable."

He took the plates inside and put them with other silverware in the safe. The same thing happens in more than one store in New York. Up-to-date motor delivery wagons in this city are often rather valuable property. The famous art motor wagon of an expensive Broadway florist bears his name in large gold letters on the sides. These letters are so arranged that they can be removed every night and replaced in the morning.

Great place, Broadway, to see queer things if you only keep your eyes and your ears open and your mouth closed!

To know something about Hades, it is not necessary to depart this life. All you have to do is to send up to Connecticut and buy one of those steam automobiles you read so much about being sent to Sulu, Senagambia and Timbuctoo. Your Hadesian education will begin from the first minute you own it until the first minute after you have unloaded it upon some other poor fool like yourself. Then the new owner will begin to enjoy his share of hell here.

Originality is one of the essential qualifications necessary to ultimate success in automobile making. This is especially true in the advertising end of the business. Originality is a broad term, and it can be brought into profitable play in an almost unlimited field and in diversified forms. In advertising this quality is made apparent in different ways, bringing into play the products of thousands of brains, each brain having a kink therein different from all others. Originality is simply a brain kink. See that your ad man has this kink in place of some others he is more likely to have.

One of the commonest and most disagreeable sights in a big city is that of a strong, brutal human being beating a weak and overworked horse because it refuses to do what it cannot do. Brutality inflicted upon horses is atrocious. But the bad effect of such unkind treatment of animals on human character is far more serious than the actual physical suffering inflicted.

The perfection of the automobile will do much to improve human beings by taking away from their control and from brutal coercion submissive animals. Everybody knows that the moral standard is raised immediately in a country when slavery is abolished. In America we have abolished the slavery of human beings, but we still adhere to horse slavery, accompanied by all the worst forms of the old negro slavery. The faithful slave may be beaten and driven to death. The driver must be brutalized.

Every day, on every street, you may see stupid, muscular boys and men jerking with all their might on the tender mouths of poor horses, only too willing to do their best. This brutal indifference to the sufferings of animals makes us brutal and indifferent in other directions. With the advent of the automobile and the disappearance of horses from our cities, horse slavery will be abolished and men, compelled to use their brains in dealing with machinery, will soon become more nearly human than they are at present. The practical abolition of the street car horse is one great step in advance. The abolition of the truck horse, carriage horse, cab horse, soon to come, will complete the dream of those modern and highly deserving abolitionists, the automobile inventors, manufacturers and users.

"En panne" is one of those terms of French origin which the automobile has brought into prominence. When an automobile is compelled to stop, owing to something going wrong with it, it is "en panne." It makes no difference whether the mishap is a major or a minor one—whether a broken wheel or axle, a stripped gear or a clogged gasolene pipe—or if the detention lasts five minutes or five hours, the car is "en panne" just the same. When I was in Ireland last year they had me guessing when those foreigners kept saying this was "en panne" and so was that. I asked all the American team what the panny of an automobile was, and they admitted they knew no more than I did. Finally I took an Anglo-Frenchman over behind a hedge, pleaded ignorance, asked for an explanation, and got it. For the next few days I panned the American team until they were sick of the word and me. Then I cleared up the mystery, and all panned when anything went wrong.

I can't just make up my mind whether the automobile has been a greater boon to the funsmith than it has to the space-filler. Both of these industrious individuals have profited largely by the vogue of the automobile, while the me-

chanical wonder-worker has not been altogether left out of the running. In a very creditable attempt to secure first honors in this direction the wonder-workers made a couple of star plays recently when they trotted out Mr. T. H. Williams and "a celebrated French engineer."

According to his exploiters Mr. Williams intends to provide electric vehicles with one terminal grounded, and to send energy to the vehicles from something like a Marconi transmitting station, the energy presumably being concentrated by a reflector on the vehicle. The periodicity of the electric undulations received by the vehicle is to be diminished to a practicable figure, and then the car is to run, presumably, by means of an alternating current motor. Imagine a station sending out energy on such a stupendous scale that the fraction of it which an automobile can catch at a distance of miles would be sufficient to provide for its propulsion and then you have some idea of the utter fallacy of this Williams allegement.

"The celebrated French engineer" leaves Williams miles to the bad, since he is credited with an invention called a "criterium," which consists of an aluminium box (these things are usually made of aluminium) containing a watch, a chronograph, and set of mileage counters. The combination of these articles in the aluminium box, it is said, enables the employer of it to ascertain the speed of the vehicle he is driving, how much fuel he uses, what distance he has traveled, and the exact time he took in running it. This is all the inventor claims at present. Probably he will soon improve his device so as to indicate the proper road to take at corners, to warn him of the presence of a graft-seeking constable or desirable road house, in which case it will then be quite a valuable apparatus, but as it is now—well, I won't pass a final opinion until I have consulted "the famous French engineer" and see how he stands on the advertising proposition.

When scientific men agree with me and my ideas I am a great believer in scientific men, hence when Professor Hele-Shaw, during an extremely interesting discourse recently, was very emphatic upon a point which I have times out of number insisted upon as a *sine qua non* for owners of automobiles who desire to get the best out of their machines. I am, as I said, a firm believer in scientists. Professor Hele-Shaw said that if a man had not prepared himself to thoroughly master the details of the working of his car, he must take care that he has a proper attendant who is not a mere driver, but a skilled mechanic. The professor maintained, just as I have always done, that it was from overlooking this fact that nine-tenths of the disappointments in motoring were experienced, while, on the other hand, every one who had really taken the matter up seriously, and given the working of the motor car the attention it deserved, had been amply repaid, not merely in the pleasure which the motor car gave from the sense of freedom and independence which being able to travel anywhere on the roads ensured, but from the point of view of being able to move rapidly from place to place, starting the motor by the mere turning of a handle, which, if it was in proper order and properly cared for, might be trusted to go any distance without fatigue in all weathers, and to continue doing so if necessary twenty-four hours in the day.

Before I drop these wonder workers, permit me to introduce "Professor" Charles H. Gage, of San Francisco, U.S.A., concerning whom the ever entertaining, if not always accurate, press

worker claims has invented a battery that will revolutionize the construction of motors and startle the world with its astounding power compressed into a remarkably small compass. In its construction this small Gage revolutionizer resembles that of the ordinary dry battery to a great extent, but it is so small that it can easily be contained in an ordinary size vial and carried in the vest pocket, so at least the exploiter of the professor says. He also claims that one of these batteries, not exceeding in size a child's finger, will produce sufficient force to knock down fifty persons standing in a ring with hands clasped. He says the new batteries are simple in construction, though it has taken years of study and experiment to bring them to a degree of perfection.

"With batteries charged with this new radium preparation," the exploiter makes the professor say, "I will guarantee to startle the scientific world with my experiments. I will guarantee to run a big automobile filled with passengers a distance of 300 miles with one charge. This is only one of the many things which I will guarantee, and as soon as Post and myself are ready for the tests we will prove our statements. Our method is an entirely new one and different from the process in vogue in the East and in Europe with new motor batteries that have been tried and found wanting. We have worked at this for more than twelve years, and now our labors are about completed, and success, I am sure, will crown them."

Great times coming, I can tell you. Only hope I'll be here when they arrive.

It is not advisable to depend altogether upon prices, even where the vehicle you build is of a decidedly popular figure type. Talk quality as well. "A little more money, perhaps, but——" is always a convincing argument. People take some pride in buying quality, and the quality reasoning builds up the reputation of the manufacturer and is reflected even in cheaper grades of vehicles.

The philosophers who so often berate the automobile for some fool horse running away because he did not like its looks, seem to forget that it is the horse, not the automobile, that runs away. In all the stories of automobile wrongdoing that I have seen, there has been only one in which the machine ran away, and that one was a fabrication pure and simple. Meanwhile hundreds of people have been slaughtered by runaway horses, the most of which took fright at something else than an automobile. When you come to think it over you will find that the automobile never shies, stands without tying, does not know fear, can be stopped sooner than a horse, and is easier to control. Anything from an automobile or Jumbo to a flying scrap of paper may start a horse running, and he may take to the sidewalk and slaughter half a dozen inattentive persons. Nothing phases the automobile, not even the dislike of anti-progressives or the injustice of vote-seeking legislators.

The Town Council of Suffolk, Va., has the strength of its convictions. It has passed an ordinance prohibiting the use of automobiles or other vehicles propelled by steam, gasolene or electricity which make noise sufficient to frighten horses. At any rate, this is a more honest way of doing it than is favored by the people of Long Island who are responsible for the absurd Bailey law and its iniquitous enforcement. But, all the same, it is absurdly reminiscent of the opposition which was made to railroads in the early part of last century.

Any schoolboy knows theoretically it is, of course, best to use as large a diameter of wheel for automobiles as possible, since in going over depressions in the ground the larger wheel sinks less deeply into them and, consequently, is easier to force out from such depressions, while the smaller wheel sinks deeper in proportion and is more difficult to withdraw. The reason why the larger wheel is not used upon motor vehicles is because the weight would thereby be elevated and the tendency to upset when taking corners at speed would be greatly increased. There is no reason why a larger diameter wheel should not be fitted to cars which are not intended to go at great speeds. Another factor in this question is one of price where pneumatic tires are concerned, as, of course, the larger the diameter of the tire the more costly it very naturally is.

Do you know that many makers and sellers of automobiles are dishonest, because the public is dishonest? Did you ever stop to think how much in this world is artificiality? What great pains we go to, to get or make something that looks like something else? Can we after all blame too severely the manufacturer or the agent that is simply over-zealous in catering to this human peculiarity? And yet you rely on some of these people to tell you what is the right vehicle for you to buy; and public opinion is moulded out of the thought and suggestion of men like these, who hold the public confidence. The true tradesman recognizes his public responsibility and will not cater to dishonest ideas, no matter how profitable they might seem to be. And why not be honest? There can be no possible benefit from the deception. Why call an automobile worth $1,200, selling at $800, when it is only worth $1,000? It is a bargain at $800. And yet the purchaser is often a party to the deception, and likes to tell a neighbor that the vehicle he bought is worth the bigger price. The tradesman simply caters to a human failing. But there is another element of human nature that knows that the servant that lies for them will lie to them. Humanity in the aggregate is honest, and wants plain, honest statements, and reliable information about all that it spends its money for; and the wise dealer endeavors to give these facts frankly in every announcement he makes.

The knack of putting one's self in the buyer's place is essential to the writing of good advertisements, and it is the lack of this knack which is causing many a so-called advertising expert to fill dearly purchased advertising space with a lot of words which makes the whole performance very much like throwing his employer's money at the birds.

It seems utterly impossible to get many automobile owners to realize the necessity for straining gasolene as it is poured into the supply tank of the car. Even men who have owned automobiles for quite a time neglect this important, though apparently small, item. They invariably start off by straining their gasolene, but sometimes when the strainer is not at hand they simply pour the contents into the supply tank from the can direct. Because nothing has happened they have continued this practice, with the result that they have got an accumulation of dust which sooner or later reaches the carburetter, causing a great deal of trouble and annoyance before it is finally got rid of. Rather than fill up the tank with unstrained gasolene, should you tempo-

rarily without a strainer like the Hussey, for example, it is better to use a pocket handkerchief folded twice or three times, or even four times, according to the texture of the material, and make a strainer of it. Of course, the handkerchief, after being employed in this way, is not intended for personal use before it has paid a visit to the laundry.

One of my correspondents writes me that he finds a most useful addition to his automobile's equipment is a length of piano wire about the same gauge as the existing inlet spring. It not infrequently happens that a proper valve spring is not included in the parts carried, and when one of these becomes weakened or breaks it is often a matter of difficulty to get even so small a thing into proper working order again. By carrying a piece of wire of this type, a spring of practically any required strength can be made and used without the necessity of tempering, as would be the case with most of the other kinds of wire used for spring making. This may appear to some to be superfluous, but there have often been occasions when a length of wire would have meant a great saving of time and temper had it been available.

The newspaper sages who wonder at the magical spread of something like automobiling, do not seem to take account of the immense advertising force that is behind it. With as much publicity behind any novelty—or one-quarter as much—it would be possible to spread it over the habitable globe.

When I was chasing glory and a few other equally desirable but elusive commodities in Ireland on the occasion of the last Gordon Bennett cup race, I had it brought home to me more than once that "the rocky road to Dublin" existed in reality quite as well as in song and story. Now I see by the papers that Lord Iveagh, he who won a peerage by making Guinness' stout and ales, is going to start a motor van line over the Irish roads so the peasantry may be free from the curse of Irish railroads, which, if anything could be, are a bit worse than Irish roads. If this new motor vehicle idea is a success I shall expect that famous song of the rocky road to Dublin to appear in something like this shape:

Long the Irish farmer groaned and bemoaned that extortion sat enthroned, as was owned, in the size of all the rates on the freights, and the long delays at railway station gates.

'Twas a rocky road, indeed, the mar-

ket road to Dublin, a trail of rut and weed, setting hearts with rage a bubblin'.

Oh, he couldn't ship his oats, nor his goats, nor the eggs on which the Dublin dweller dotes, for the railway wanted all for the haul, and the shipper wouldn't have a cent at all.

'Twas a rocky road in sooth, the tenant farmer troublin', a heavy pull in truth, that stony road to Dublin.

Till Pirrie and Iveagh, t'other day, put the money up to pay for a way, which would send in motor cars, minus jars, or the long delay that mars, all his produce up to Dublin.

So 'twill be an easy road—Pat's heart with joy is bubblin'—the railroad men be blowed, his butter's going to Dublin!

I dined at the Lawyers' Club recently at the same time Mr. Schwab did and in the course of a discussion concerning automobiles I learned some very interesting things concerning how Mr. Schwab became the enthusiastic automobilist he now is.

It appears that the crushing weight of the great Steel Trust had become too great for its million-dollar-a-year president to stand and by advice of his physicians here he sought relief and help in Europe. Once there coaching, yachting, mountaineering and travel of every kind was tried but none was the panacea for disordered nerves that the steel king sought. Finally some one told him of a famous neurologist in Germany and thither Mr. Schwab journeyed. When the German had examined Mr. Schwab, he told him medicine was not what was needed, but a constant life in the open air which while free from any excitement would still be sufficiently diverting to prevent the patient from dwelling too much upon his condition. As the means most suited for the end sought long drives in the Black Forest were commended. Whereupon Mr. Schwab bought the very best there were in the shape of German horses, harness, carriages, etc., and undertook the cure with the Herr Doctor who had prescribed it as a companion.

About the second time out Mr. Schwab told the doctor that if he could regain his health and prolong his life only by the aid of a German team and a German driver, then he was prepared to cash in, or words to that effect. Herr Doctor pleaded, expostulated and did what else he could, but the next day when he came to drive out with his patient he found awaiting him an automobile whose redness, size and general design showed it was a flyer from Flytown. Herr Doctor was horrified. Yet that never phased Mr. Schwab and he finally induced the doctor to go on what the medical man declared was Mr. Schwab's suicide excursion. At the end of the first day's trip, and the chauffeur had not failed to try for a road record or two, Herr Doctor unwillingly admitted that his patient was no worse. At the end of a week he admitted the patient was improved and finally he unhesitatingly declared that the medicine Mr. Schwab needed was an automobile. This is how and why Mr. Schwab now spends two-thirds of his waking hours in an automobile.

It is characteristic of the man that he should be content with nothing but the best, which is a milder way of saying swiftest, automobile, and as fast as the makers can turn him out an improved machine they have a standing order to do so. Mr. Schwab's most favored trip is to leave New York after breakfast, lunch in Philadelphia and return to New York the same day in time to dress for dinner. That he may be sure of taking such little excursions without any slip up, Mr. Schwab not only seeks to have the best possible automobile but the most efficient chauffeur. To this end the Schwab chauffeur receives in actual wages, not to mention other valuable rewards, clothes, board, expenses, etc., $250 per month. When his record at the end of the month, however, shows no annoying delays, accidents or breakdowns while Mr. Schwab is a passenger then the chauffeur's salary by the mere fact of these omissions becomes $500 and continues at that figure until an accident happens when it falls to $250 again. I am informed that Mr. Schwab by this very simple expedient succeeded in absolutely eliminating all of the breakdowns, delays, accidents and such

like, which so often go to make of automobiling a thing of tribulation, not pleasure. When Mr. Schwab and his chauffeur are overtaken by bad weather or darkness, or anything else which temporarily causes the trip to be abandoned, a chess-board, which is always carried on the vehicle, is brought forth, and master and man are soon engaged in the battle of king and pawn, a battle by the bye which does not always end in the master vanquishing the man.

—

Before I forget it, I noticed when I went through the Automobile Show last week that about every vehicle there sported from two to four "Phare Solar" lamps. Now I understood the Dick Welles part—that's the "Solar"—of the affair, but the "Phare" end of it had me guessing until I met my old friend E. C. Roberts. I took this gentleman over behind the woodshed and when I was sure no one would hear me confessing my ignorance I plead guilty to not knowing what, why, nor when a "Phare" was. Then Prof. Roberts, who still retains all of his college education, enlightened me. "Phare," he said, "is derived from the Greek word 'pharos,' a lighthouse. The original pharos, a beacon light on the island of Pharos, in the harbor of Alexandria, Egypt, was one of the seven wonders of the ancient world."

When I had safely lodged this information in my knowledge box and got Prof. Roberts well out of ear shot, the way I drove the whole tribe of Johnny-know-it-alls into their holes with the simple question, "What does 'Phare' mean?" was something cruel. But you see a man in my business has just got to put it up to and all over the "among others present" or else they'd have no respect for you, thinking you were as ignorant as they are. The idea!

—

Of course this show game is an old one for me, yet every time I attend one of these Madison Square gold mine exhibits nothing amuses me more than actions of the exhibitors themselves. To me they are far away the best part of the whole show. You see when it comes to an affair of this kind nobody likes to be nobody; but everybody is pleased to think himself somebody. And everybody is somebody; but, when anybody thinks himself to be somebody, he generally thinks everybody else to be nobody, and so the game goes each year. The real somebody in the trade nobody would even know he was somebody, but the nobody—and he's a regiment—always finds somebody who agrees with his own idea that he is somebody, while really he's only a small fragment of the hole in the center of a cipher.

—

This somebody vs. nobody thought brings to me a mental picture of an individual in the trade whose alternate rises and falls have always interested me. Originally one of that vast army of blue printers who to automobiling's sorrow and cost rushed into the trade before the trade knew how deadly they were, this individual like his fellow theorists proceeded to construct impracticable automobiles with nothing but a T-square, a compass and some drawing paper for building materials. Of course the confiding capitalists who paid for this "scientific" automobile had

in the end nothing but debts, losses and experience to show for their trustfulness. When this came the pompous blue printer moved on, and now—well, say, Solomon was only a super in the fourth row back of the chorus when compared with this blue printer either as to raiment or knowledge! Really, I can't for the life of me see why I should have to work for a living when I see gentlemen like this blue print individual just taking up both sides of automobiling's Broadway at the same time and actually making people believe, and pay for the belief, too, that he is something else than a great big bluff. But I console myself with the memory of a whole host of such make-believes that I saw spring up in bicycling over night and vanish just as quickly. When the inevitable test comes in the automobile trade, as quickly come it must, I'll see the flock of goats, which will be weeded out from the sheep, lead by a big bellied old bluffing Billie whose bluff will have been called and on the show down he will have been found minus anything more valuable than bluff, belly and buncombe.

I have been invited to become a member of the newly organized Automobile Trade club. I have declined because I think a man in my position should be free to express his opinions whenever he may have opinions worth the trouble of giving vent to them. Had I accepted the invitation and become a member of the club in question I would constantly have found myself in the unpleasant position of criticising my fellow club mates, and that would have been inexcusable on my part. So it is that I retain my $10 and relinquish my right to belong to an organization whose coat of arms I understand is to be a hammer suppliant on a field argent with a gold brick rampant and the motto "Doem et doem bonum," which in good old Welsh latin, the only kind I know, is freely translated, "Do them and do them good."

What do the organizers of this club mean any way by casting asparagus upon the Ancient and Honorable Order of Knockers, I'd like to know? What would happen if there was no knocking, and where would the club look for members if there were no knockers? Personally I believe in knocking. Criticism makes for progress, and the absence of it permits the continuance of the imperfections and shortcomings which handicap and hold back. If there had been no fault-finding should we not be ploughing with forked sticks and harvesting with sickles like the old Egyptians? Should we have displaced the stage coach with the automobile, or the sailing vessel with the ocean liner? If man were not given to knocking would he have half the rights that are now his as the reward of his protests against wrongs? Knocking is a good thing. If the object against which it is directed deserves the castigation there is a resulting improvement and a higher standard; if undeserved it falls harmless, defeating its own ends. The critic has a mission in life no less important than that of the one who constructs and creates. Let us therefore continue to knock, thereby ending abuses and holding the automobile trade as well as the world at large up to its best efforts. So much for knocking, yet I defy you to disprove the truth of what I have said in its favor, whether you believe in hammer-festing or not.

I want to congratulate the automobile trade for an unusually considerate and

thoughtful action on their part. As I have had occasion to remark before in these pages, the word "automobile" whenever it is seen by any one connected with the New York Times always produces a mental and a physical condition closely bordering upon that of the bull when he is confronted with a view of the auctioneer's house flag. Very properly recognizing the cruelty of in any way adding to the sufferings of the Times' staff, the trade with an unusual, but nevertheless entirely praiseworthy, unanimity religiously withheld all show advertising from the columns of the Times, while they poured it by the tens of thousands of dollars' worth to every other paper. I am not sure that the Times will permit itself to be won over even by this proof of the automobilists' regard for its motorphobic feelings, but I am nevertheless sure that a few more doses of the same kind of medicine will certainly cure the patient whether it likes the medicine or not.

One of the worst and most annoying things an automobilist has to contend with is the always present danger of some two- or four-legged animal getting in front of his machine. If the automobile is going at a fair rate, the striking and running over a pig, a dog, or a sheep is liable to bring disaster. A Fulton, N. Y., man writes me that he has what he believes will surely prove to be a panacea for this evil. He has invented what he calls an "auto-catcher," which is something in the nature of the trolley fender, but which will be much more sightly and out of the way.

The Fultonian device when not in use folds up snugly in front of the machine, and is made of extra tough pleated steel strips which curve very much like the trolley fender, and when folded it is scarcely noticeable, since supporting the chains on the sides are wound up by clock-like weights. When danger threatens, the automobile driver touches a button (which can be placed if necessary on the steering wheel and connected with a battery). The instant the button is pressed the fender drops promptly, and the pressure on another button picks the fender up after it has done its duty in throwing out of the way of the machine anything that might have got in front of it. Drivers know that children oft times run blindly into the middle of the road, so it may be that this new device of a New York State man may be a life saver, quite as well as an accident preventer.

It is tough enough, goodness knows, for a poor girl to find herself in the coldest weather in 25 years plastered up against a dead wall with nothing but a bleached head of hair, a picture hat, a summer costume and a simper to protect herself from the cutting remarks and blasts which in her plastered position assail her, but when in addition to all this she is made to seat herself in an automobile which was an "also ran" when Adam was an infant, then it is time for the Society of Prevention of Cruelty to Backnumbers to do something and do it quick. Of course, every one knows the automobile show causes its promoters to lose thousands of dollars each year—maybe. Still, even that isn't any excuse for their heartless indifference to the way that poor bleach blond of theirs is made to suffer, and they should pass round the hat either to get her a new suit and a new vehicle or else send her to the Home for Aged Hasbeens. In less allegorical language: Why don't the managers of the automobile show get a poster to advertise the show which does in itself proclaim it to be a back number?

We were coming home from Florida. The woman with the hatchet face in the seat ahead of us was telling the woman with the baby stare all about the events at Ormond. She went on and on like a rattling shutter in a gale of wind, and I kind of lost track of what she was saying until I heard say:

"Yes, my husband would bet on the races and he lost all his money simply because, as usual, he would not take my advice."

"What advice did you give him?" asked the baby-like one.

"I told him there was one man in every race that was sure to win, and that all he had to do was to find out which one he was. But he wouldn't take my advice and, of course, he lost."

"Did he?" I heard the baby starer observe, as I lit out for the smoking compartment.

It is the last chance I'll get to preach a sermon this year, though you will not read it until next year, so here goes just a little panegyric on the automobile while Christmas bells are ringing.

(Like a few other good things this was left over from the holiday rush, but it is too good to be lost, so I am running it in now along with some February G. W. joshes.—The Senator.)

First, in the early days of the world, were the slow-moving caravans of camels, picking their arduous ways along rough tracks and ungraded paths, the creaking ox cart and the laden mule or horse. Then road building and the creation of palanquins and carriages, then the post road, the roadside tavern and the note of the coach horn awakening the quiet country hamlet from its lethargy. Then the two shining rails, the steam engine and the railway train, then the overhead wires and the electric car, binding village to village.

And now the automobile practical, safe, inexpensive, vaunting the railway train, outspeeding the fleetest horse! A horse can go a mile in about two minutes, or it can go forty miles in a day. An automobile can go a mile in one minute, or forty, fifty and even sixty miles in one hour, and keep up that pace hour after hour indefinitely. This is what the automobile means today.

Good roads, reaching out into all parts of our land, roads which will be useful also for the farmer and the traveler, with or without his automobile. It means that the day of railroad monopoly is past and that the individual will go and come how, when and where he pleases. It means that that provincialism which stunted the growth of Greece, which has arrested national and personal development in China for three thousand years, and which is the greatest foe civilization has to fight, will be annihilated. It means that one may live in the country, yet pursue an urban occupation. If it did only this the automobile would be one of the greatest blessings of this, the most wondrous century in the world's history.

My apologies are due and must be made to A. R. Pardington, chairman of the Racing Board of the American Automobile Association, and I hasten to set both Mr. Pardington and myself right before the eyes of the automobile fraternity, as it is a rule which is without the proverbial exception that if at any time a misstatement is made on these pages, every one who may be injured thereby must be given a square and a fair show.

The fact that the aggrieved may have

no retaliatory weapon in the shape of a paper to get back at me is met with the offer by the MAGAZINE that its columns are always open to anybody who has been misquoted or injured in any way. It is my desire always to give the facts just as they are, without any trimmings, and that is the reason why scores of letters have been received during the past few months complimenting the MAGAZINE on its truth telling and its very unusual disregard of whether a firm or a man advertises or not when it comes to giving the MAGAZINE'S readers inside facts, and straight ones at that. I was indeed complimented when the other day in the American Darracq Automobile Company's office one of its managers made this assertion:

"I am glad that there is one automobile journal which is not afraid to tell the truth, and this company will show its appreciation of the stand you have taken by seeing to it that you will get advertising business just as long as this concern is in existence."

Before coming to Mr. Pardington's letter, I wish to voice my thorough appreciation of him as a man and as an official in automobiling. I have done this before, so at this time it may be a repetition, but it is none the less sincere for all of that. Mr. Pardington deserves much credit for the hard work he has put in for the Three A's, and his recent winning over W. K. Vanderbilt, Jr., who is not only one of America's brightest and most progressive young millionaires, but a capital sportsman to boot, shows that Mr. Pardington has high aims for his association, since it is doubtful if any other name could give the Racing Board of the A. A. A. so much distinction as that of the young millionaire of the popular Vanderbilt family. Now to Mr. Pardington's letter, which is as follows:

"Due to lack of or misinformation, you, in the January issue, did the Racing Board a small injustice. Not that we are feeling hurt, but that we like to appear in the right light is the reason for my calling your attention to the fact.

Recently you referred to some alleged decisions. This Board has never ruled that prizes should go to the owner of the car, or the manufacturer if he be represented by a salaried employee. The nearest we have come to rendering a decision is as follows: F. A. La Roche protested to us against the delivery to Sincholle of certain prizes won by the latter on the middle west circuit. The Syracuse Automobile Club appealed to the Board to decide to whom the prizes should be delivered. Knowing nothing of any of the circumstances surrounding the case, the chairman of the Board, by mail, sought information from the parties at interest, with the idea of determining as to whether or not the Board had power in the matter. Before this evidence was all in hand, Mr. La Roche withdrew his protest, allowed Sincholle to receive the awards, and no expression, even of personal opinion, on the part of any member of the Board, was recorded or made public.

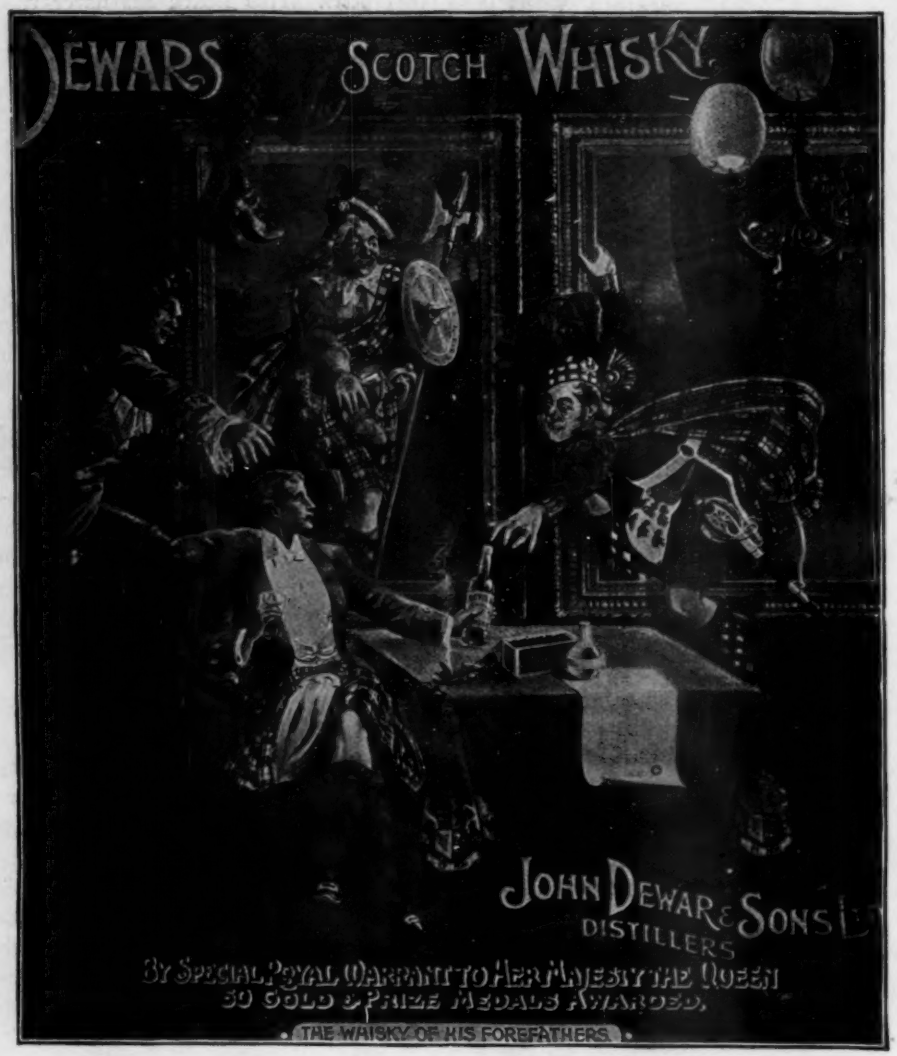
"This occurrence, which with one exception has never been made public, is the one that can be considered in the class referred to by you. The exception referred to was an article, written by Mr. Spooner, appearing in December, 1903, in the *Commercial Advertiser*. The chairman of the Board at once wrote to Mr. Spooner asking that his denial of the statement be made public. This, to my knowledge, was never done, although Mr. Spooner assured me that it would be."

Saint Valentine with Washington
This month quite fitly shares,
For one on cherries made his fame,
The other one on pairs.

THE SENATOR.

The Best Human Lubricant . . .

When you are on tour or a day's run and you want a lubricant for destroying dust and removing fatigue, you will find **DEWAR'S Famous White Label SCOTCH WHISKY**—an ideal lubricant and bracer for the automobilist—and all other people.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50 GOLD & PRIZE MEDALS AWARDED.
THE WHISKY OF HIS FOREFATHERS.

UNITED STATES BRANCH
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Fifth Avenue and 34th Street
Opposite Waldorf-Astoria.
FREDERICK GLASSUP
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DEWAR'S
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SCOTCH

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Two-cylinder engine, air-cooled, mounted in front, sliding-gear transmission, three forward speeds and reverse all on one lever with direct drive on high speed, automatic lubrication, seven actual horse-power; quiet in action.

Price, $700

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Baltimore & Ohio R. R.
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Pennsylvania R. R.
Seaboard Air Line Railway
and Southern Railway
Between all Points via Richmond, Va.

Fast Mail, Passenger, Express and Freight Route between Richmond, Washington, Baltimore, Philadelphia, New York, Boston, Pittsburgh, Buffalo and all points North, South, East and West.

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No better example of fine American workmanship, of carefully studied out principles, of extreme care in construction, can be found than in

Phare Solar. Price, $25 each.

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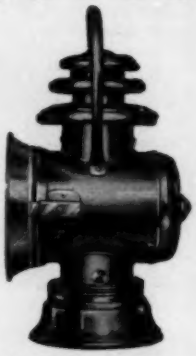

Junior Oil Side Lamp. Price, $11.

They are made to give absolutely satisfactory service under most adverse conditions. If you have used them in years past you know—if not be convinced this year.

THE BADGER BRASS MFG. CO., Kenosha, Wis.

Eastern Branch: 11 Warren St., New York, N. Y.

GOODRICH AUTOMOBILE TIRES
LED ALL THE REST

Seventy-two Motor Cars at the New York Automobile Show were equipped with GOODRICH TIRES.

A List that Tells the Story—Interesting and true.

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F. B. Stearns Co.	3 "	Locomobile Co.	1 "
Baker Motor Vehicle Co.	7 "	Knox Automobile Co.	1 "
Cadillac Automobile Co.	5 "	Pope-Robinson Co.	1 "
Geo. N. Pierce Co.	4 "	E. R. Thomas Motor Co.	1 "
H. H. Franklin Mfg. Co.	3 "	T. B. Jeffery Mfg. Co.	1 "
Waltham Mfg. Co.	3 "	Ford Automobile Co.	1 "
Electric Vehicle Co.	3 "	Apperson Bros.	1 "
Columbus Cge. & Harness Co. (Rodgers & Co.)	3 "	Columbus Motor Vehicle Co.	1 "
Fredonia Mfg. Co.	3 "	Elmore Mfg. Co.	1 "
Berg Auto Co.	3 "	Standard Motor Car Co.	1 "
H. H. Buffum Co	3 "	Alden, Sampson Mfg. Co.	1 "
Moyea Automobile Co.	2 "	Prescott Mfg. Co.	1 "
Desberon Motor Car Co.	2 "	Upton Machine Co.	1 "
The Walther Car Co.	1 "		
	57	Total	72 Cars

These are representative automobile manufacturers who equip their machines with the best tires sold

Draw Your Own Inference

THE B. F. GOODRICH CO., Akron Rubber Works, Akron, Ohio

NEW YORK, 66-68 Reade Street and 1625 Broadway

PHILADELPHIA, 922 Arch St. BUFFALO, 9 West Huron St. BOSTON, 157 Summer St.
DETROIT, 80 East Congress St. LONDON, 7 Snow Hill, E. C. DENVER, 1444 Curtis St.
SAN FRANCISCO, 392 Mission St. CHICAGO, 141 Lake St.